# PACKAGE engineering

## New foremen "learn by doing"

Is your training passive (all orientation, no work) or casual (older foremen pass along the word)? Here is a program that gives trainees perspective, yet makes them do actual jobs and meet deadlines—Page 57

## Foreign methods worth noting

Two seasoned production men review what they saw of interest in Europe. They offer straight-from-the-shoulder answers to questions asking just how effective are European packaging line operations—Page 78

## Are you using too much board?

There is more to minimizing a container's material than just finding its optimum dimensions. Here is a way (with equations) to do this and yet balance board use with other package requirements—Page 88

**Complete contents—Page 2**

**JUNE 1961**

VOLUME 6 • NUMBER 6

# A stack of reasons for bundling by Scandia

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# PACKAGE engineering

JUNE 1961 • VOLUME 6 • NUMBER 6 • AN ANGUS J. RAY PUBLICATION

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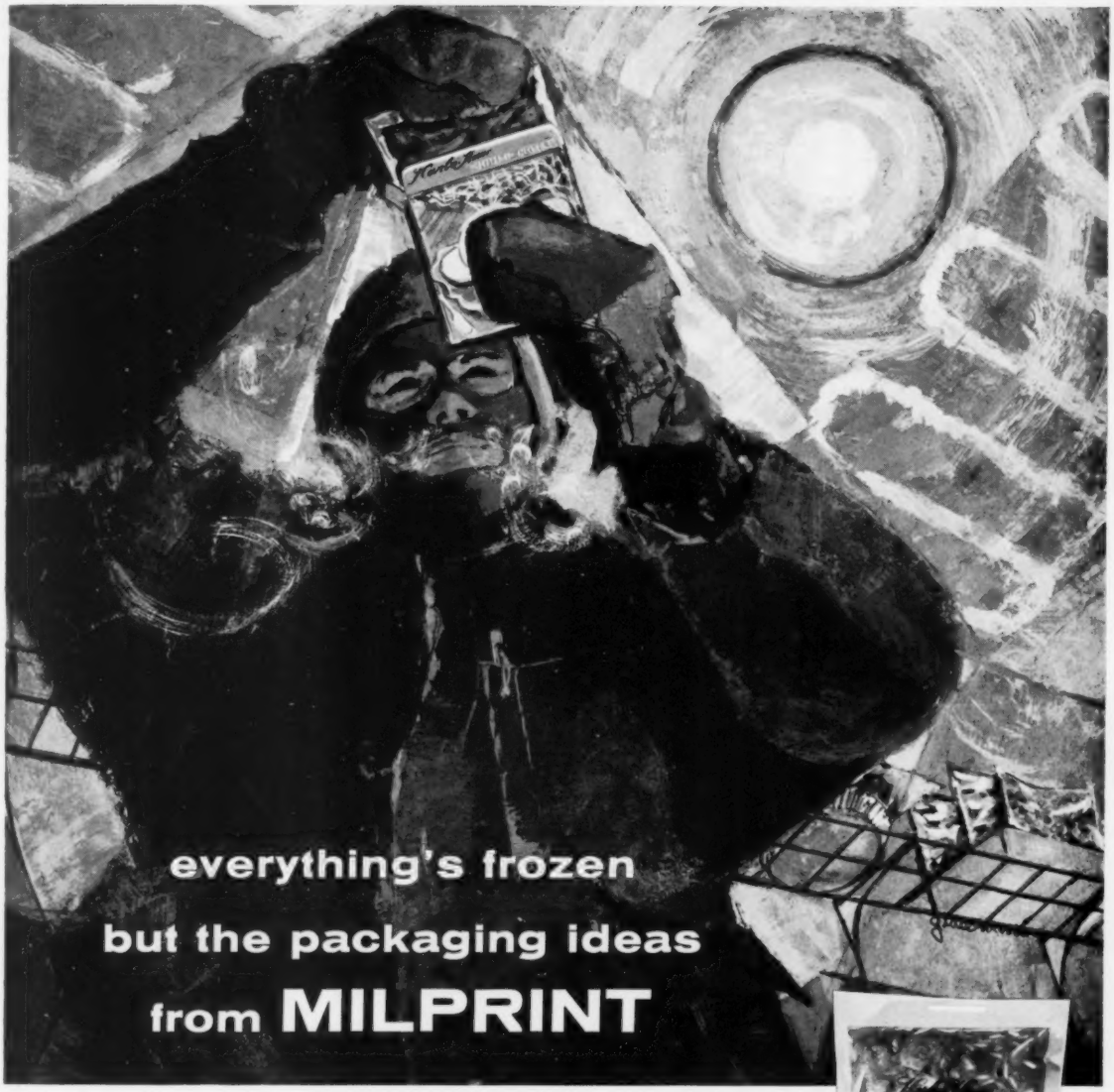
*Our December, 1961 issue will carry a cumulative editorial index for the year, listing our feature articles by subject and author.*

**Package Engineering is indexed in Engineering Index**



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## A note from the Publisher

## *PI and SPHE could cooperate more*

My comments in this column in January that packaging did not need a third professional group have not aroused any adverse comments. Few if any believe that any ideas expressed to date by this new group improve on anything that the Packaging Institute or the Society of Packaging & Handling Engineers is doing. Rather than a new splinter group being formed, I believe the best interests of the packaging field would be served by closer cooperation between the two professional groups already existing.

A step in this direction was the joint dinner meeting held in New York during April by PI and SPHE. This meeting was attended by approximately 100 individuals about evenly divided as to membership in the two groups. From all reports the meeting was a success, which is not strange since the job interests of men in both groups have many similarities.

Perhaps these two groups could further cooperate by awarding a single certificate of professional status—a certificate signed by officers of both groups. Both groups are now organized on a professional member basis and both groups have very similar requirements for professional recognition. What minor differences there are in requirements could easily be ironed out.

The term packaging engineer is greatly misused. It should indicate certain minimum experience requirements and preferably certain educational requirements. In practice it can mean anything from a highly trained and experienced man to a neophyte salesman. The function of package engineering is not always understood by top management nor is top management always aware of the contribution to a company's profit that the professional packaging man is making.

A single certificate signed by officers of both groups would do much to raise the standing of professionals in the field if requirements were kept high and rigidly enforced. I believe a single certificate would help make top management more aware of the importance of the professional packaging man in a business organization.

Angus J. Ray

Publisher


**PACKAGE engineering®**

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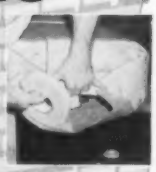

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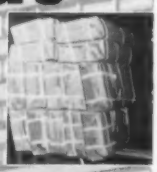

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# For your calendar

**June 5-7. AMA orientation seminar on paper, boxboard, and corrugated packaging:**
The Hotel Astor, New York, N.Y. Contact: John L. Wood, executive director, American Management Association, 1515 Broadway, New York 36, N.Y. *Telephone: JUdson 6-8100.*

**September 18-23. The University of Kansas 6th Annual Plant Layout and Facilities Planning Course:**
Town House Hotel, Kansas City, Kan. Contact: E. S. Avison, assistant manager, The University of Kansas Extension Center, 39th and Rainbow Blvd., Kansas City 12, Kan. *Telephone: KEndall 2-1538 or 2-9387.*

**October 1-4. Produce Packaging Association 11th Annual Convention and Exposition:**
Chase–Park Plaza Hotel, St. Louis, Mo. Contact: Robert L. Carey, executive secretary, Produce Packaging Association, P.O. Box 29, Newark, Del. *Telephone: ENdicott 8-2906.*

**October 10-12. Department of Defense (Director of Defense Research and Engineering) 30th Symposium on Shock, Vibration and Associated Environments:**
Statler Hilton Hotel, Detroit, Mich. Contact: Code 4021, U.S. Naval Research Laboratory, Washington 25, D.C. *Telephone: JOhnson 3-6600, Ext. 2220.*

**October 18-20. Packaging Institute 23rd Annual National Packing Forum:**
Biltmore Hotel, New York, N.Y. Contact: Charles A. Feld, executive director, Packaging Institute, 342 Madison Ave., New York 17, N.Y. *Telephone: MUrray Hill 7-8875.*

**November 7-10. Packaging Machinery Manufacturers Institute Show of 1961:**
Cobo Hall, Detroit, Mich. Contact: W. L. Redding, Hanson & Shea, Inc., One Gateway Center, Pittsburgh 22, Pa. *Telephone: ATlantic 1-8552.*

**November 8-9. PMMI Preventive Maintenance Conference-Workshop:**
Cobo Hall, Detroit, Mich. Contact: Richard Wellbrock, New Jersey Machine Corp., 1600 Willow Ave., Hoboken, N.J. *Telephone: OLdfield 9-0483.*

**November 13-14. Society of Packaging & Handling Engineers 1961 National Packaging and Materials Handling Competition, and 7th Annual Eastern Packaging and Handling Show:**
Fifth Regiment Armory Hall, Baltimore, Md. Contact: C. Telfair Leinbach, Jr., 3120 St. Paul St., Baltimore 18, Md. *Telephone: HOpkins 7-6363. (End)*

# Resilo-Pak gives maximum security packaging to Burroughs' Atlas Missile computer element

For air shipment to missile sites, delicate computer components for the Atlas Missile Guidance System were given maximum security packaging in a surprisingly simple manner with Resilo-Pak, Armstrong's resilient cushioning.

The inner carton containing the computer was wrapped in an outer carton to which pads of Resilo-Pak were cemented. The superior resilience and energy absorption of this new cushioning assured maximum protection—with minimum weight and cubage.

This Resilo-Pak engineered package is fast and easy to assemble, too. The outer carton, with cushioning already in place, is simply folded over the inner carton and sealed.

The designer, Downtown Packaging of Detroit, fabricates the container and packages the unit for Burroughs.

Clean, white Resilo-Pak is highly versatile. It can be fabricated by die-cutting, hot wire cutting, heat deformation, cementing. It cushions effectively from – 80 F to + 165 F. It is odorless, non-corrosive, non-dusting, and non-abrasive. And it meets Interim Fed. Spec. PPP-C-00850 (GSA-FSS).

For free Resilo-Pak booklet, write Armstrong Cork Company, 3106 Pearl St., Lancaster, Pennsylvania.

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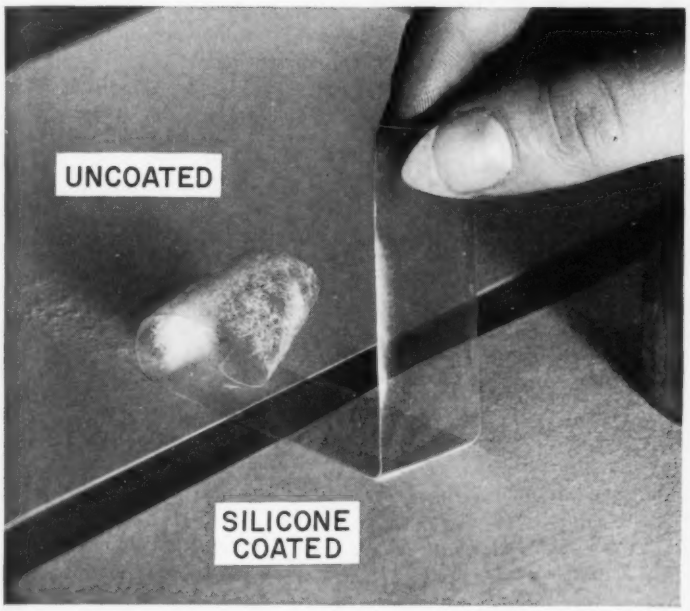
**SILICONE NEWS from Dow Corning**

# No Sticking Here!



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# The PULSE of packaging

**Trends to watch:**

As soon as high-speed machinery becomes available to handle them, shrinkable plastic films are in for a boom, according to Woodrow J. Vogel, general director of Reynolds Metals Co.'s plastics division. He thinks annual consumption would quadruple within a year to some 25 million pounds.

**Produce, baked goods, and bundle multipacking of cans and canisters would represent 15 million pounds of this potential. Products running from phonograph records through food and paper products would take the remainder of this annual consumption, he thinks.**

*Noting that blow molding techniques now produce all-plastic shipping containers up to 55-gal. capacity, E. E. Winne, vice president,* W. R. Grace & Co.'s *polymer chemicals division, thinks these containers can take over a large part of the field which glass carboys, steel drums and pails now serve.*

He predicts that new compounds of high-density polyethylene suggest a possible 40-million-pound market for industrial containers by 1965.

**Further, David Taylor, president of Celanese Plastics Co., thinks plastics will score a major breakthrough in liquid containers. He thinks polyethylene containers in the household chemical field alone should rise from a current annual level of 250 million units to 1 billion units by the end of 1965.**

*Mr. Taylor attributes this growth to improvements in polyethylene resins plus the adaptation of other plastics to blow molding.*

Meanwhile we keep on getting reports about the growth of foamed plastic, now "in its infancy." We hear machinery experts, for example, reminding package users to be sure that foamed plastics dry a couple of days before use—to avoid corrosion of parts packaged.

**Others advise package users to capitalize on the thermal resistance and shock resistance of these materials, but to use them in conjunction with other materials—and to watch out for migration of plasticizers.**

*We can expect a rapid rise in liner-less cartons and in the use of paperboard containers in applications previously impractical—even breakfast cereals, according to S. F. Thune, vice president,* National Starch and Chemical Corp. *He bases his forecast on new developments in coatings such as polyvinylidene chloride latex.*

Similarly, David Bookshester, sales manager, adhesives department, Morningstar-Paisley, Inc., thinks that new developments in adhesives, such as those based on polyvinyl acetate emulsions used for sealing waxed food cartons, represent a current achievement of major importance. This is because the new adhesives get away from use of carbon tetrachloride.

**Research indicating that their lower cost and safety measures minimize processing hazards have contributed to the growing use of liquefied hydrocarbons as aerosol propellants, according to Powr-Pak, Inc. It says these materials are no longer considered flammable.**

*Use of new lightweight tin plate should generate a potential annual savings of $7 million for the brewing industry, according to Robert C. Stolk, vice president,* American Can Co. *He says a case of the new cans will weigh one-half pound less than a case of conventional cans.*

**Packaging across the seas:**

Some 300 firms will use more than 300,000 sq. ft. of floor space in the Grand and National Halls of Olympia, London, September 5-15 for the 7th International Packaging Exhibition.

**Concurrently with it, the Institute of Packaging is planning a convention in conjunction with the Western Hemisphere Exports Council and the Exports Council for Europe. Speakers from both sides of the Atlantic will discuss "packaging for export to North America, Latin America, and the Caribbean."**

*According to British Information Services, Britain's industry last year spent about $1.7 billion dollars on packaging, double what it spent in 1953.*

The 1961 exhibition will occupy more than twice the area that the 1955 exhibition did. Foreign exhibitors will include representatives from Germany, Switzerland, France, Italy, the Scandinavian countries, and the United States.

**Exhibits will include the dry overprinting of packaging materials by thermoplastic printing, an "ice proof" adhesive said to be unaffected by sudden temperature changes and capable of withstanding immersion in ice or iced water for a week, packaging molded from expanded polystyrene, "self-adhesive" labels and tapes for permanent bonding to irregularly shaped containers, and a range of machinery such as a high-speed cartoning unit from Italy.**

*(Turn page)*

# How Union-Camp's 5-Star Plan saved multiwall bag user over $130,000 a year

Making things the same can sometimes make a whale of a difference. Particularly in a multiwall bagging operation. The Smith-Douglass Company, Inc., of Norfolk, Virginia proved it recently when they put Union-Camp's 5-Star Plan into action. The difference—in annual packaging savings—came to over $130,000 a year!

**Standardize = Economize**

Initial 5-Star Plan surveys at Smith-Douglass' six plants revealed that *standardization* held the key to major cost reductions. Three plants used sewn open-mouth multiwall bags. One used sewn valve bags. The remaining two plants used both types of bags.

Union-Camp's multiwall specialists showed that $30,000 a year could be saved by converting all six plants to sewn open-mouth bags and using open-mouth bag filling machines.

**5-Star Plan in action.** Plant surveys made by Union-Camp multiwall specialists paved the way for the major packaging savings described here.

That was only the beginning. By carrying the change-over one step further, and standardizing on *size* and *construction* of multiwall bags, the company would save another $22,000 a year.

**1 Design Replaces 160**

Next, Union-Camp's survey team analyzed the company's existing bag *designs*. They found there were about 160 designs being used. Here, again, standardization was recommended.

By creating one basic design, eliminating an expensive yellow outer sheet, and using the same printing copy for all bags, the company netted additional economies of $84,000 a year.

$30,000 plus $20,000 plus $84,000. Total annual packaging savings—$134,000.

**$30,000 a year savings** resulted from converting to sewn open-mouth multiwalls in company's six plants.

**How Much Could You Save?**

Hundreds of companies—large and small—reduce their multiwall packaging costs by taking advantage of Union-Camp's 5-Star Plan. This comprehensive service is free. It covers bag design, bag construction, specifications control, packaging machinery and a survey of your materials handling operation. An improvement in any one of these areas conceivably could result in substantial economies for you.

See your local Union-Camp man for complete details.

**This basic bag design,** now used for all Smith-Douglass brands, reduced company's multiwall costs by $84,000.

FREE 16-PAGE BOOKLET

Write Dept. M-4 today for a free copy of Union-Camp's new 5-Star Plan booklet. It describes many case histories showing how packers like yourself have achieved greater efficiency and economy in their multiwall packaging operations.

UNION-CAMP
MULTIWALL BAGS
Union Bag-Camp Paper Corporation 233 Broadway N.Y. 7, N.Y.

from ALCOA June, 1961

# Current Foil Packaging Report

**Checklist for "better packaging."** Does your present or proposed package give your product maximum protection for the money? How does it stand up under conditions of heat, cold, moisture and physical abuse? Does it provide adequate shelf life? Could it be improved from the standpoint of customer convenience? How would it compare to a package of aluminum foil or foil lamination?

To help you get these answers, ALCOA will *test your package in its full-scale packaging laboratory.*

**With ALCOA® Aluminum Foil you can improve your package** . . . ALCOA will help you determine what alloys and gages are best suited to your application . . . what companion materials are called for . . . what adhesives, coatings, inks or lacquers are best suited to your needs. Alcoa will also work with you on equipment requirements. In short, Alcoa wants to work with you.

**ALCOA Research** . . . a program designed to support you! Your direct liaison with ALCOA Research is your Alcoa sales engineer. A call to him gives you access to authoritative data on aluminum research and practice in many fields. The talents and resources of the hundreds of scientists and engineers of ALCOA's laboratory staffs are yours to call upon.

**ALCOA Service.** At the moment you become an ALCOA customer, other measurable advantages of dealing with Alcoa come into play. ALCOA maintains a service organization which is recognized as the best and most complete in the aluminum industry. It is staffed by service inspectors who possess extensive practical knowledge in every commercial form of aluminum and who are familiar with every method of fabricating and conversion. These men speak the language of your operating personnel and are capable of translating theoretical knowledge into workaday terms. They operate in conjunction with sales and production.

**ALCOA Quality.** ALCOA's aluminum production facilities are unmatched by any other manufacturer . . . its quality specifications have set a standard for the entire industry. With ALCOA foil you are getting the highest quality. Your requirements will be most competently appraised and satisfied.

**The ALCOA Label.** Here is a selling tool which you can use to real advantage . . . a symbol of excellence in aluminum known to nearly all of adult America. Retailers fully recognize its selling power as do thousands of manufacturers who are using this label on millions of items. Backed by nationwide advertising and promotion of intense power, it has proved itself capable of increasing sales. If your use of ALCOA Foil involves a consumer product, you can qualify for this label.

**Look for future "Current Reports" from ALCOA** . . . they are designed to fill your need for facts . . . facts about aluminum foil, about aluminum closures, about aluminum cans and containers, about ALCOA. But published reports must deal with packaging opportunities in a general way. To enlist the complete resources of ALCOA, look to the right . . .

# Your Complete Packaging Service Center

*to* ALCOA

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- ☐ **Aluminum Closures**
- ☐ **Cans and Containers**

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|---|---|
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| ☐ Frozen Foods | ☐ Dairy Products |
| ☐ Meats | ☐ Beer |
| ☐ Fish | ☐ Industrial Parts |
| ☐ Pet Food | ☐ Instant Beverages |
| ☐ Pharmaceuticals | ☐ Tobacco Products |
| ☐ Drugs | ☐ Petroleum Products |
| ☐ Cosmetics | ☐ Condiments |
| ☐ Toiletries | ☐ Seeds |
| ☐ Wine | ☐ Others |
| ☐ Liquor | |

**(Fill in specific applications)**

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City_____ Zone_____ State_____


REXALL DRUG AND CHEMICAL CO. *has established its first major plastics processing plant in Europe—a 200,000-sq.-ft. structure near Brussels, Belgium, to be in operation this fall.*

WRIGHT MACHINERY CO., Div. of Sperry Rand Corp., and HAMAC-HANSELLA A.G. MACHINENFABRICK of the Federal Republic of West Germany, have agreed to represent each other in sales, service, and spare parts. Wright will handle Hamac-Hansella's single-column bag forming and filling equipment in the United States, and Hamac will be responsible for Wright weighing machinery in West Germany, the Netherlands, Belgium, and Luxembourg.

**MINNESOTA MINING AND MANUFACTURING CO. has formed a wholly owned sales subsidiary in Vienna—MINNESOTA "3M" TECHNISCHE VERTRIEBS, GMBH.**

*Reports from Japan indicate growing efforts to standardize on packaging so that goods may move from shippers to consignees by railroad service—without reshipments. Similar reports indicate more attention to package closing. Estimates indicate there are about 4,000 staplers in Japan including 300 pneumatic ones.*

Meanwhile, shock and vibration studies go on. The Japanese show growing interest in comparing cellular synthetic resin, rubber bonded hair, shredded film, molded paper, and crepe cellulose wadding.

**H. Hanakawa, chief engineer, packaging section, INDUSTRIAL TECNIC CENTER of Osaka Prefecture, hopes to see more companies enter this field and hopes that more packagers move from "cut and try" methods to analytical designing.**

**Groups in the news:**

*Preliminary reports indicate that some 207 manufacturers of packaging machinery and closely related packaging products will use more than 95,000 sq. ft. of space in Detroit's Cobo Hall (November 7-10) for the* PACKAGING MACHINERY MANUFACTURERS INSTITUTE SHOW. *Already these exhibitors represent companies from 24 states and 2 foreign countries.*

AMERICAN SOCIETY FOR TESTING MATERIALS says that 1960 supplements (in ten parts) to its 1958 book of ASTM standards are now available. The supplements cost $10 per part, $40 per set. Readers may buy these from ASTM at 1916 Race St., Philadelphia 3, Pa.

**Dollars and cents:**

**Net sales of ST. REGIS PAPER CO. for the first quarter of 1961 totalled $131,412,209, compared with $129,948,939 for the same period of last year. Net earnings for the first three months of 1961 amounted to $4,305,776. For the first quarter of 1960, net earnings amounted to $6,230,490.**

DIAMOND NATIONAL CORP.'S *sales for the first quarter were $51,692,000, compared with $55,482,000 for the same 1960 period. Earnings amounted to $2,952,000 for 1961's first quarter, compared with $2,982,000 for the same 1960 period.*

(Turn page)

BROCKWAY GLASS CO. reports a 4.7 per cent increase in net sales for the six-month period ended March 31, 1961: $25,760,391, as compared with $24,595,416 for the same period of 1960. Net income for this period was $818,286, a decline from the same 1960 period's income of $1,575,393.

**For the first quarter of 1961, CONTINENTAL CAN CO. reports net sales of $242,052,000, as compared to $240,951,000 for the same 1961 period. The quarter's net income was $4,960,000, as compared to 1960's $3,790,000.**

CROWN CORK & SEAL CO., INC. *reports first quarter sales of $31,964,000, as compared to 1960's first period total of $28,765,000. For the same period, net profit was $896,000, as compared to 1960's $609,000.*

For the first quarter of 1961, AMERICAN CAN CO. sales amounted to $230,148,000, compared to $222,848,000 for the same 1960 period. Net income for 1961's first quarter was $6,583,000, compared to $6,233,000 for the similar 1960 period.

**Sales of OLIN MATHIESON CHEMICAL CORP. in the first quarter of 1961 were $159,959,000, 1.9 per cent less than the record high of $163,132,000 in the initial quarter of 1960. Net profits were $5,115,000, compared with $8,567,000 a year ago.**

**Notes about the government:**

*According to Produce Packaging Association, Inc., the Vegetable Research and Marketing Advisory Committee of the* U.S. DEPARTMENT OF AGRICULTURE *is urging a number of new directions for this research.*

These include engineering, studies of transportation containers, development of better consumer packages to maintain quality and freshness, and polyethylene and polypropylene liners for some vegetables requiring moisture retention.

**We hear that elsewhere in the Department of Agriculture some researchers have found out how to take the water out of honey, thus permitting its shipment in dry form. Users merely add water, according to these research people.**

**More expansion for packaging:**

E. I. DU PONT DE NEMOURS & CO. (INC.) *will build a new plant at Orange, Tex. to produce high-pressure polyethylene and a new product, a copolymer of ethylene and vinyl acetate.*

CENTRAL PAPER CO. has purchased the TOUCHDOWN CORP., Chicago. Touchdown's line of tapes and printers' stock will be added to Central's line of products.

**FEDERAL PAPER CO., INC. will build a new $15 million mill at Versailles, Conn. incorporating a new type of paperboard machine.**

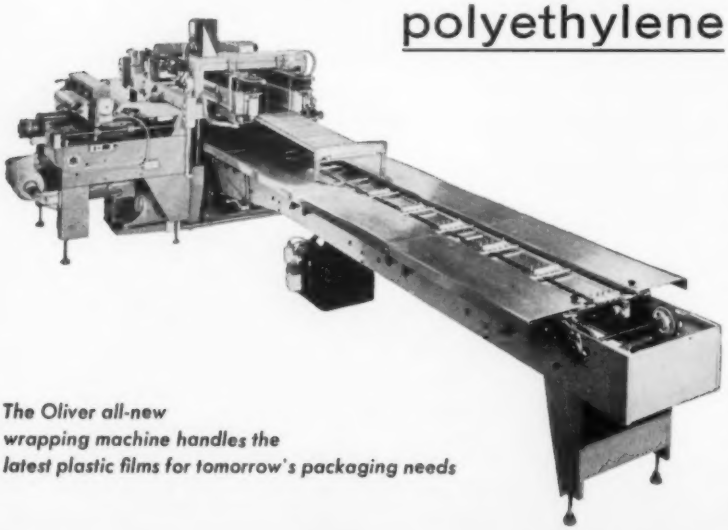
*A 170,000,000-sq.-ft. building will house* ST. JOE PAPER CO.'s *Birmingham, Ala. operation by early next year.*

A newly formed Indiana corporation, FAIRMOUNT GLASS CORP., will be operated as a subsidiary of INLAND CONTAINER CORP. The new corporation has acquired the operating properties and certain other assets of FAIRMOUNT GLASS WORKS, INC.

*(Turn page)*


OLIVER announces the all-new

variety wrapping machine for handling polyethylene



*The Oliver all-new wrapping machine handles the latest plastic films for tomorrow's packaging needs*

Plan now to wrap your products in polyethylene — or any other of tomorrow's soft, plastic films — with its many advantages of extra protection and economy. This *all-new* versatile machine also handles cellophane, waxed paper and heat sealing foils. A change of films requires a simple electronic heat adjustment. The Oliver embodies the latest engineering developments . . .

1. The Oliver uses ordinary polyethylene — plain or printed, high, medium, low density of 1 mil and up.
2. It is versatile. You can make a complete change for package size quickly.
3. The vacuum sheet-feed belt assures positive film feed without distortion.
4. A roll-type labeler can heat-seal an attractive label to top surface of package.
5. Wrapping film can be made as snug or loose around products as desired.
6. Choose from two types of bottom and end seals: overall or narrow line seal.
7. Oliver thermostatic system holds the sealing temperature within close limits. The cooling system assures heat-removal for strong, positive seals.
8. Can be furnished with vacuum-type feeder for flat cards and U-boards fed to infeed flights. Photo-electric eye available.

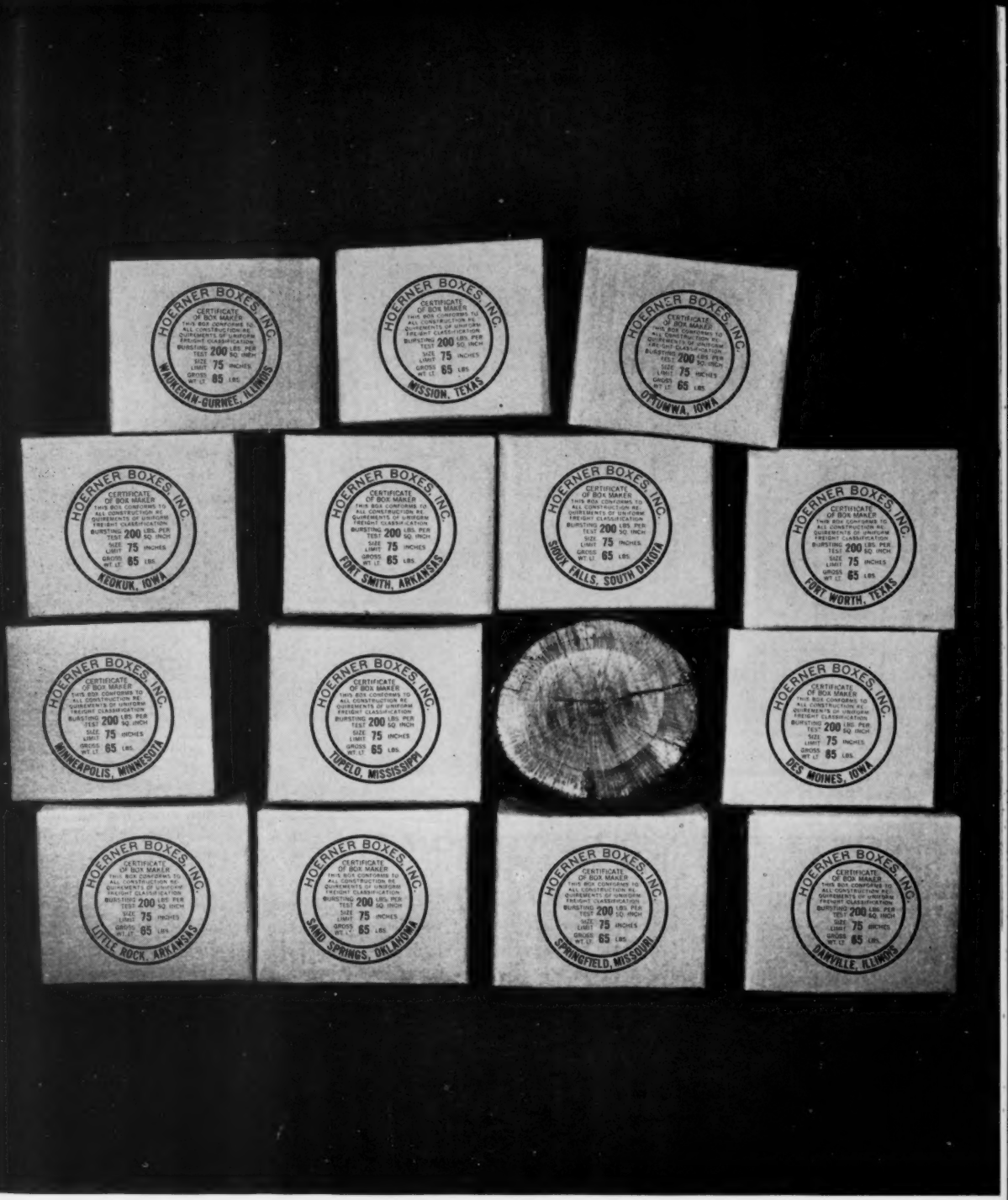
Choose the model that best fits your needs. Write today for all the facts.

OLIVER MACHINERY COMPANY
GRAND RAPIDS 2, MICHIGAN




For more information circle No. 211 on Reader Service Card

Circle No. 212 on Card ▶




# WHO PLANTED THE LOG IN THE PLANTS?

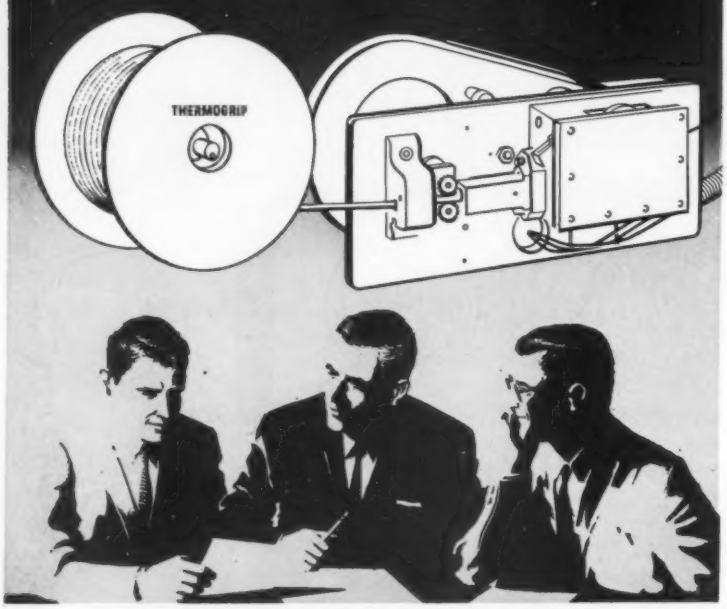
Each of these boxes comes from a different Hoerner plant — plants that range from Minneapolis to Mission and Danville to Sand Springs. Eight new plants have been added in the past five years to give better, faster service to more customers. The log? It's from the Hoerner mill in Missoula, Montana. It was planted here to show you Hoerner's integration — — another reason for their dependability.

## HOERNER BOXES, INC.

*CORRUGATED PACKAGING SPECIALISTS FOR MID-AMERICA*

GENERAL OFFICES: 600 Morgan Street, Keokuk, Iowa • MILL: Missoula, Montana • PLANTS: Fort Smith and Little Rock, Arkansas; Danville and Waukegan-Gurnee, Illinois; Des Moines, Keokuk and Ottumwa, Iowa; Minneapolis, Minnesota; Tupelo, Mississippi; Springfield, Missouri; Sand Springs, Oklahoma; Sioux Falls, South Dakota; Fort Worth and Mission, Texas • ASSOCIATE: Cajas y Empaques Impermeables, S.A., Mexico City D.F., Mexico

A DECISION NOW FOR
THERMOGRIP®
HOT MELT ADHESIVES




WILL LOWER APPLIED
COSTS FOR YEARS TO COME!

PACKAGE SEALING with THERMOGRIP hot melts is helping users to: . . . seal *more* units on existing equipment . . . save room with compact new or rebuilt packaging machines . . . produce pilfer-proof or easy opening cartons with a minimum of change-over . . . get cleaner more reliable sealing with less time spent on clean-up.

Looking into THERMOGRIP *now* to accomplish any of these improvements may save you real dollars in equipment and plant space in the years ahead.

And the way your adhesives costs stay in line, even drop, will please you. That's because THERMOGRIP hot melts make effective bonds with *less* adhesive. You can apply it in bands or dots just where you need it on plain, lightly waxed, polycoated or gloss stocks and printed surfaces.

Write for data showing how others have benefited in package sealing with THERMOGRIP.

United

UNITED SHOE MACHINERY CORPORATION
B. B. CHEMICAL CO., SUBSIDIARY
784 MEMORIAL DRIVE, CAMBRIDGE 39, MASS.

US1-44

**Rapid-American Corp. has purchased all the outstanding stock of Cellu-Craft Products Corp. and will operate it as a subsidiary.**

Crown Zellerbach Corp. *will build a corrugated shipping container plant in the Los Angeles area. The 11,000-sq.-ft. building is scheduled for operation within a year.*

Roth-Pak, Inc. will add the Dosamatic Dropper Corp. products to its line of molded closures and fitments.

**What people are doing:**

**Kraft Foods honored Henry Fundakowski, production technician at Chicago headquarters, for "bringing about the standardization of packaging specifications."**

*At Carnation Co.,* Fred Karlsrud *has been promoted to Albers Div. general production manager, succeeding the late Francis Albers. Mr. Karlsrud has been plant superintendent at the Oakland plant since 1954.*

Dr. Keith W. Max will assume the newly created position of director of Continental Can Co. Previously he was general manager of research and development for the firm's Robert Gair Paper Products group.

**Russell E. Vannatta, plant manager of The Mead Corp.'s Cincinnati Div. for the past eight years, is now division manager.**

*Nashua Corp.'s flexible packaging division has named* Philip M. Barnhart *Midwest manager and* Alan P. Thomson *sales representative, Boston area.*

William W. Dipman succeeds William H. Mellick, who is resigning, as director of flexible packaging sales for Union Bag-Camp Paper Corp. Since joining the company in 1947, Mr. Dipman has served in sales capacities and as assistant to the president.

**The newly created position of vice president and marketing division general manager for Milprint, Inc. will be filled by Wagner Van Vlack. Mr. Van Vlack was previously field sales manager for American Can Co.** *(End)*


For more information circle No. 213 on Reader Service Card

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**PROBLEM:** How to improve the most widely used milk carton in America.

**SOLUTION:** International Paper produces a remarkable new plastic-coated Pure-Pak® milk container.

THE FAMILIAR Pure-Pak carton is the most widely used milk carton in America.

This carton is tough and durable. Dairymen also like it because it is stored *flat*, takes up much less storage space. And housewives appreciate its unique pitcher-pour spout. Supermarket managers like the Pure-Pak carton because *housewives do.*

Now International Paper has helped improve this Pure-Pak milk carton by coating paper board with *plastic*. This gives the carton a sturdy feel and glistening appearance, increasing its sales appeal.

International Paper has had ten years' experience in coating paper with plastic. And the last three years have been spent in testing this revolutionary carton in dairies.

Millions of plastic Pure-Pak cartons made by International Paper are now being used in day-to-day dairy operations. Proof of their success is the increased demand that dairies have reported when they use these new containers.

The plastic-coated Pure-Pak container is another example of International Paper's packaging versatility. International Paper can provide you with the widest range of papers, paperboards and packaging assistance in the industry. If you are interested in *improved* packaging, call on us.

®Ex-Cell-O Corporation

**INTERNATIONAL PAPER**
NEW YORK 17, N. Y.

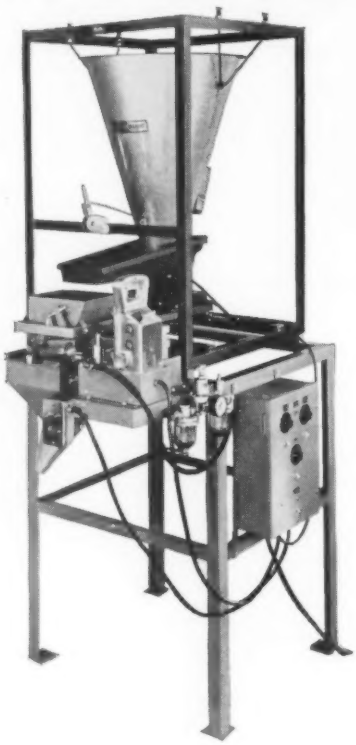
*Manufacturers of papers for magazines, books and newspapers • papers for home and office use • converting papers • papers and paperboards for packaging • shipping containers • folding cartons • milk containers • multiwall bags • grocery and specialty bags and sacks • pulps for industry • lumber, plywood and other building materials*

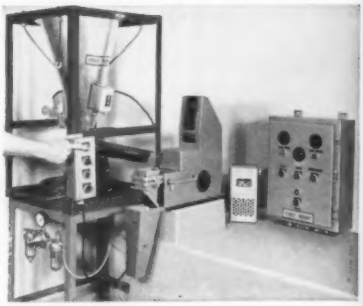
# EXACT WEIGHT® Automatic Net Weighing Machines

## FOR PACKAGING, BAGGING, BATCHING, COMPOUNDING

***Featuring***

**Over-under indicator for constant visual check on weighments**



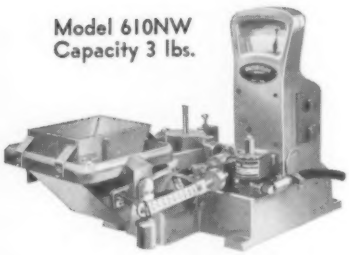


**PRECISION AUTOMATIC MODEL 4601NW**

The machine above is designed for weighing dry, free-flowing materials with accuracies of 1/10 gram on quantities below 10 grams and one percent accuracy on quantities of 10 grams and above. Combines a high-accuracy Shadograph® Scale, air-operated dump mechanism, hoppers, vibratory feeders and photoelectric controls. Precision models with capacities from 50 grams to 500 grams. Write for Bulletin 3363.

Model 620NW
Capacity 10 lbs.

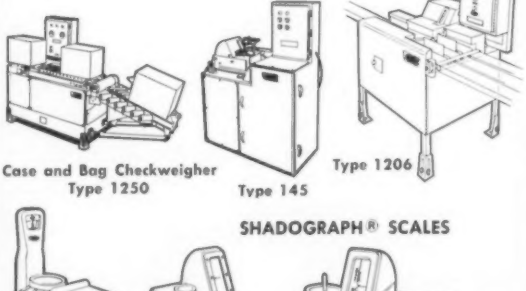
Model 610NW
Capacity 3 lbs.



Net Weigher can be supplied without the feeder machine, support frame and discharge chute. The unit may be adaptable to your specific operation.

### OTHER EXACT WEIGHT EQUIPMENT

**SELECTROL® AUTOMATIC CHECKWEIGHERS**

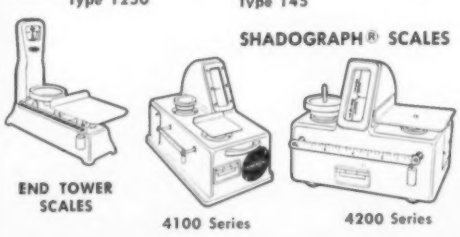


Case and Bag Checkweigher Type 1250

Type 145

Type 1206

**SHADOGRAPH® SCALES**



END TOWER SCALES

4100 Series

4200 Series

High speed, smooth operation and accurate control are among the many advantages offered by Exact Weight Automatic Net Weighing Machines.

Accuracy is assured by the 1:1 ratio lever-design precision industrial scale incorporated in each machine. A special feature is the over-under indicator dial that enables the operator to observe accuracy of each weighment. Visual indication eliminates the need for checkweighing—stops overweights. Machines are available in capacities from 1 gram to 300 pounds, either fully-automatic or semi-automatic models.

Exact Weight offers counsel for weighing problems based on 45 years of experience in industrial scales for all type of applications. Our recommendations will be tailored to your specific needs . . . and at no obligation. Write for Form 3311.

**THE EXACT WEIGHT SCALE CO.**

912 W. FIFTH AVE., COLUMBUS 8, OHIO

In Canada: 5 Six Points Road, Toronto 18, Ont.

*Sales and Service Coast to Coast*

Exact Weight SCALES

Find us in your local 'Yellow Pages'

*Exclusive from Johns-Manville!*

*J-M Dutch Brand No. 400 Strapping Tape has vinyl backing for abrasion resistance. It's reinforced with glass filaments (60 e.p.i.) and resists fresh and salt water, acids, alkalies, grease, oil, fungi and corrosives.*

Now you can get all the advantages offered by filament-reinforced strapping tapes...*without fear of abrasive damage!* Just use Johns-Manville Dutch Brand No. 400 Strapping Tape.

You see, most strapping tapes fail under severe abrasion because the backing wears away quickly, thus exposing the filaments to life-robbing abrasion. But not J-M Dutch Brand No. 400! It has an *exclusive* vinyl backing that's known for outstanding durability.

What's more, this abrasion-resistant strapping tape costs no more than ordinary, short-lived, paper-backed strapping tapes . . . costs less than acetate-backed strapping tapes.

Like all J-M Dutch Brand Strapping Tapes, No. 400 has a pressure-sensitive adhesive that grabs instantly . . . holds tenaciously under a wide range of conditions. It has an average tensile strength of 275 p.i.w. and fully meets U. S. Govt. Spec. PPP-T-97c, Type II.

For full facts on J-M Dutch Brand® Strapping Tapes, ask your J-M Distributor for Data File DF-ST. Or write Johns-Manville, Box 14, New York 16, N. Y. In Canada: Port Credit, Ont. Cable: Johnmanvil.

**OTHER J-M STRAPPING TAPES . . .**

No. 401 Strapping Tape.
*Acetate-backed . . . reinforced with rayon filaments (100 e.p.i.) for high impact strength and consistent holding power. Tensile strength averages 225 p.i.w.; fully meets U. S. Govt. Spec. PPP-T-97c, Type I.*

No. 402 Strapping Tape.
*Acetate-backed...reinforced with glass filaments (60 e.p.i.) for heavy-duty packaging, bundling and palletizing. Tensile strength averages 325 p.i.w.; fully meets U. S. Govt. Spec. PPP-T-97c, Type II.*

**JOHNS-MANVILLE . . . AND JOHNS-MANVILLE ALONE . . . MAKES EVERY MAJOR TYPE OF INDUSTRIAL AND ELECTRICAL TAPE!**

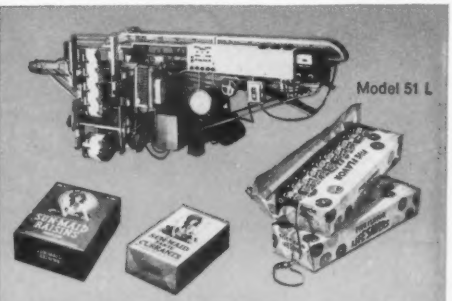
JM PRODUCTS JOHNS-MANVILLE

## BATTLE CREEK'S MODEL 51 SERIES PROVIDES

# SPEED WHEN SPEED COUNTS!

Here are six Model 51 machines "tailored" to solve individual packaging problems created by the inherent nature of the product, the high speed demands of prior processing equipment and the need for impelling product sales appeal. One of these models is best suited to precision package your product neatly, tightly in heat-sealing cellophane, laminated papers, wax-coated papers or heat-sealing foils. Each model has the same universal "Continuous Flow" characteristics which offer dramatic labor saving advantages and unique operating economies. All are ideal for long production runs of products within these size ranges: 3¼"—5½" long or 6"—11" long, 2½"—4¼" wide and ¾"—2¼" high. Inquire today about the Model 51 series and discover what Battle Creek Packaging Machines can do for you.

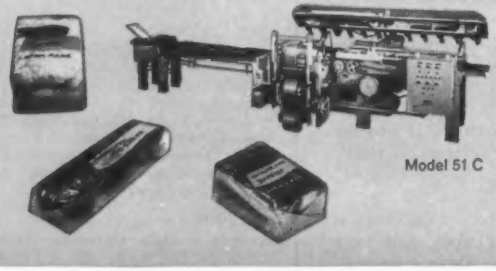
eliminate frustrating production bottlenecks with overwraps of 120 to 240 per minute



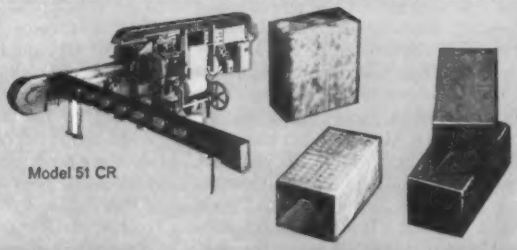

Model 51 LR

GENERAL RECTANGULAR APPLICATIONS

SOFT IRREGULAR PRODUCTS




FRACTIONAL CRACKER PACKAGES




*Continuous Flow*® PACKAGING

**BATTLE CREEK** *packaging machines, inc.*, BATTLE CREEK, MICH.

# GAYLORD
## researches out the failures

You can't afford to experiment: the wrong kind of shipping container can cost you hours, customers and dollars.

So Gaylord packaging research engineers experiment for you with the complete box, liners, adhesives, interior design—the works. Every Gaylord container that you get is *proven.*

Does your product need a better container? Call your nearby Gaylord Man. Let him and Gaylord Research go to work for you now.

**CROWN ZELLERBACH CORPORATION**
**GAYLORD CONTAINER DIVISION**

Gaylord Boxes

IN CANADA • CROWN ZELLERBACH CANADA, LTD. VANCOUVER, B. C.

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST



For more information circle No. 218 on Reader Service Card

The LOWEST PRICED Shipping Room Electric ON THE MARKET!

THE REVOLUTIONARY

# "310"

DERBY ELECTRIC

GUMMED TAPE DISPENSER

TAPE AT A TOUCH!

$144.00

The new Derby "310" electric dispenser was designed for general shipping room operations requiring a constantly changing variety of lengths of tape. Dispenses both reinforced and Kraft tapes in widths up to three inches. There are no dials to set, no adjustments to make. A touch delivers any length instantly! Its very simplicity and ease of operation makes operator-fatigue a thing of the past! The Derby "310" is priced lower than any other electric on the market, yet has all the quality features and dependable performance that are built into all Derby dispensers. Prove it in your own shipping room without obligation!

YOU CAN'T BEAT THE DERBY "310" FOR ECONOMY AND SIMPLICITY

WRITE DEPT. PE-6

FOR FREE DEMONSTRATION

DERBY SEALERS DIVISION

MINNESOTA MINING AND MANUFACTURING COMPANY

DERBY, CONNECTICUT

3M COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

# You can cut breakage during in-plant transfers ...use cartons frictionized with Du Pont LUDOX®

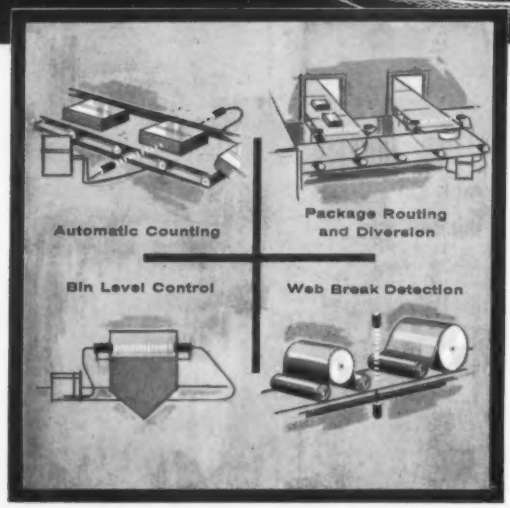
Cartons treated with "Ludox" colloidal silica have much less tendency to slip. Tiny "Ludox" particles provide millions of invisible "grippers" that increase friction. This saves you money three ways—(1) less breakage, (2) higher pallet loads possible, meaning more efficient fork-lift operation, (3) less floor space required.

A growing number of carton suppliers offer this anti-slip treatment. So next time you order, specify cartons frictionized with "Ludox"—or write direct to DuPont for information, N-2545PG Nemours Bldg., Wilmington 98, Del.

DU PONT REG. U.S. PAT. OFF. **LUDOX®** colloidal silica

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

a new dimension in automated controls




## SONAC ULTRASONIC,

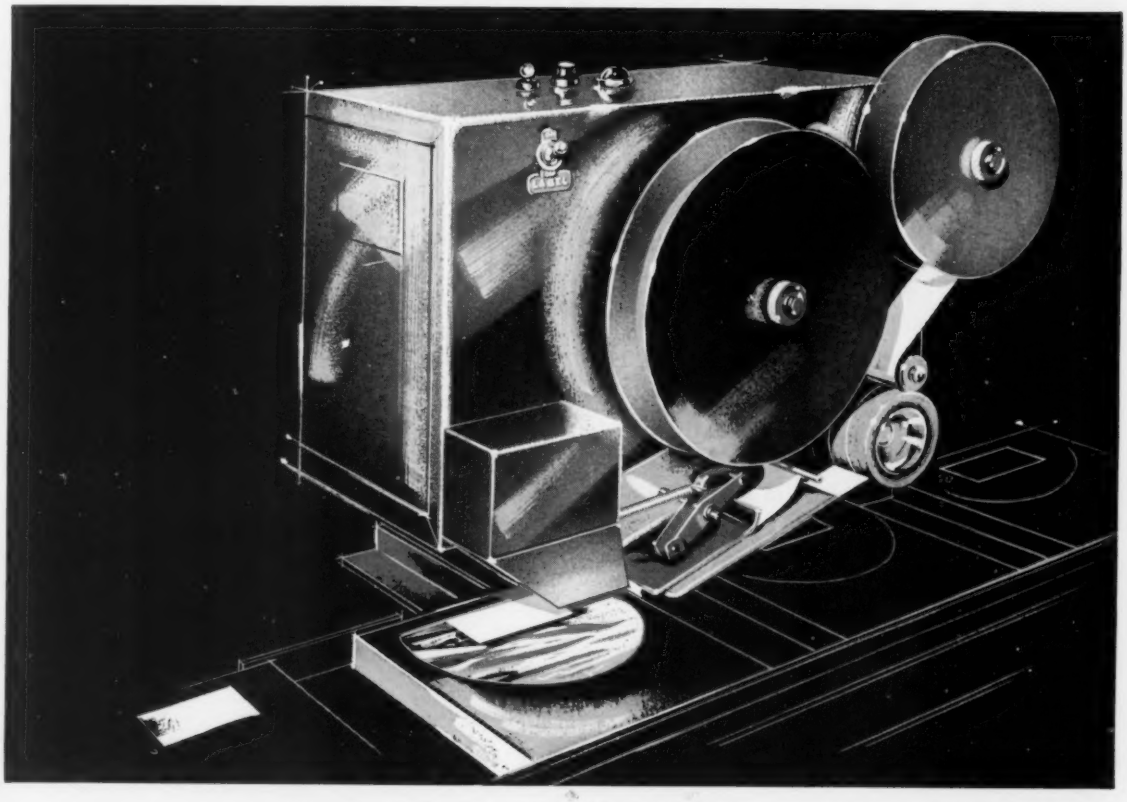
### NON-CONTACT SENSING AND SWITCHING SYSTEM

Before Sonac, sensing and switching control systems which involved breaking a beam of energy were limited by vibration, dust, smoke, steam, air contamination and too much or too little light. Sonac's ultrasonic energy "beam" is completely free of these limitations. The acoustic lens on Sonac sensors can actually be painted without affecting performance. Utilizing high frequency sound also means there are no lamps to burn out. Savings in replacement parts and maintenance time often means Sonac pays for itself. Sonac is completely transistorized, providing you with a rugged, dependable electronic circuit.

These are just a few of Sonac's many uses. Optional equipment includes reflectors for precision beam and positioning control, and coupler assemblies for use with flexible tubing for remote sensor locations. This descriptive booklet will be sent to you on request.

DELAVAN
*Manufacturing Company*
WEST DES MOINES • IOWA

FROM KLEEN-STIK ..... WORLD'S FIRST "JET-ACTION" AUTOMATIC PRESSURE-SENSITIVE LABEL APPLICATOR!



# kleen-stik® "LABEL-AIRE"

## JET-FAST . . . JET-SMOOTH . . . JET-PERFECT!

*Actually picks up and applies labels by "AIR–JET" Action!*

1. In-coming air jet picks up label as it peels off backing
2. As package or product trips micro-switch, reverse (outgoing) air jet "shoots" label into exact position

Here's the machine that brings new speed, ease, and economy to pressure-sensitive labeling on the production line. Unlike "conveyor-type" applicators which pull the label from the backing by adhesive tension, the Kleen-Stik "Label-Aire" operates on an entirely new "jet action" principle. Manufactured to highest quality standards . . . thoroughly tested for reliability . . . *guaranteed* by Kleen-Stik.

*No Heat - No Water - No Glue - No Hand Operations!*

kleen-stik® PRODUCTS, INC.

7300 West Wilson Ave. • Chicago 31, Ill.

*Plants in Chicago, Newark, Los Angeles, and Toronto, Canada*

- Handles Kleen-Stik Roll Labels from ½" to 3" wide
- Labels any material . . . . any shape of package
- Perfect registration—adjustable to any production line speed
- Compact . . . lightweight . . . easy to use
- Available on lease — no heavy investment

*Write for complete details on the new Kleen-Stik "Label-Aire"*

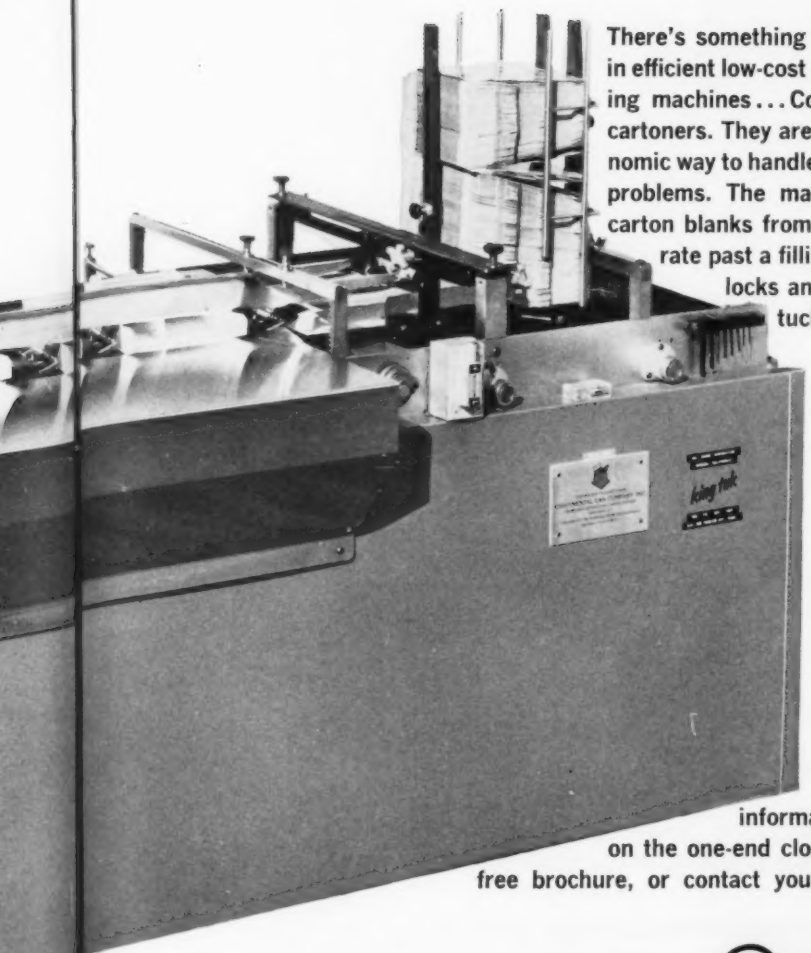
OVER 25 YEARS OF PRESSURE-SENSITIVE LEADERSHIP!

# CUT PACKAGING COSTS WITH CONTINENTAL'S KING-TUK TEAM OF LTG* CARTONING MACHINES

*LOCK, TUCK, OR GLUE

KING-TUK CLOSEMATIC CARTONER

KING-TUK
OPENMATIC CARTONER



There's something new in efficient low-cost cartoning machines... Continental's exclusive King-Tuk LTG cartoners. They are the most versatile, simple, and economic way to handle all small and medium size cartoning problems. The marvelous King-Tuk Closematic feeds carton blanks from a hopper, conveys them at a given rate past a filling station, then securely locks (edge locks and interlapping flaps), tucks (reverse tuck or straight tuck), or glues (four flap seal end) them closed. The full and sealed carton is ejected, ready to be loaded into freezer trays and shipping cases. Because of its special design and perfect timing all parts travel at the same speed as the carton. The result is a continuous motion operation capable of setting up and closing as many as 90 cartons a minute. There is a minimum of carton spoilage because the slightest jam stops the machine. And fewer moving parts make the maintenance of the King-Tuk Closematic economy itself. For further information on this cartoning must... also on the one-end closing Openmatic... write for detailed free brochure, or contact your Continental representative today.

FOLDING CARTON OPERATION

**CONTINENTAL CAN COMPANY**

530 FIFTH AVENUE, NEW YORK 36, N. Y.

OVERSEAS DIVISION: 530 FIFTH AVENUE, NEW YORK 36

## NOW–Clarity and machineability at lower cost!

This crystal clear polyethylene cast film lasts far longer on the shelf than cellophane . . . eliminates wrinkled and split wraps . . . stacks easier . . . yet costs you less at the end of the production line.

METAPLENE — now the clearest poly film on the market — is a medium density polyethylene with the high tensile strength, stiffness and uniformity essential for high speed production on modern packaging equipment.

Excellent printability and no heat sealing problems are still other important advantages of METAPLENE. Ludlow supplies flat film up to 72 inches in width...with a thickness tolerance of plus or minus 5%.

Why not get *all* the facts about METAPLENE? Write today for samples and technical data on this and other new plastics made by Ludlow's new cast film process. Write Dept. PE 61

**LUDLOW PLASTICS**

plastic coated materials, films, and other flexible materials for packaging and industry
A DIVISION OF LUDLOW CORPORATION, NEEDHAM HEIGHTS 94, MASS.

Ludlow

## will use National Specialty Adhesives

In labeling, carton forming, and case sealing, National specialty adhesives . . . used for the past half-century... have contributed greatly to the packaging leadership that has helped make Hershey's products their own best salesmen.

National ADHESIVES

NATIONAL STARCH and CHEMICAL CORPORATION

750 Third Avenue, New York 17, N. Y. Offices in All Principal Cities in the United States, Canada, England, Mexico and Australia.
Makers of a broad line of Adhesives, Synthetic Resins and Starches for packaging.

PLASTIC PACKAGING IDEAS THAT MAY GIVE YOU AN IDEA

# *New polyethylene film has all the clarity you want*

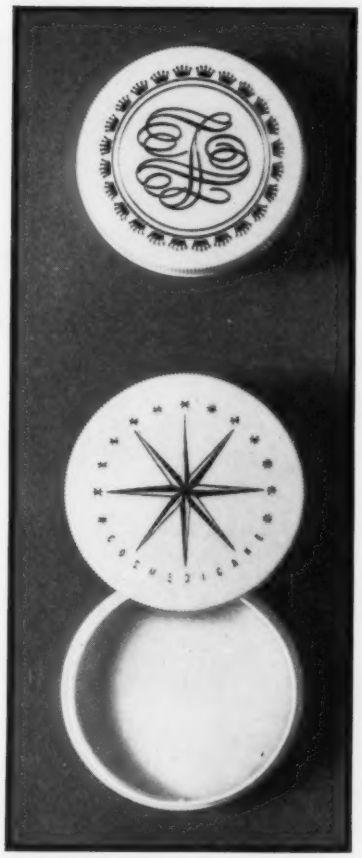
You no longer have to stock several types of polyethylene film because new DYLAN® polyethylene 2037 gives you the best combination of properties available in *any* low-density packaging film. In *one* versatile material, you get excellent transparency, unusual high gloss, and good strength. New DYLAN film has excellent draw-down so it's easy to extrude. It heat seals easily, prints clearly. Look into this newly developed DYLAN polyethylene 2037 film; it protects, shows off, and sells any food, textile, paper, industrial, novelty or toy product.

For more information circle No. 226 on Reader Service Card

## *Foam trays simplify toy packaging*

A. C. Gilbert Company uses DYLITE® expandable polystyrene trays because they completely eliminate costly interior packing materials. DYLITE trays are strong, good looking, easy to assemble and load—they save on labor costs. They also cut shipping costs because they're extremely lightweight.

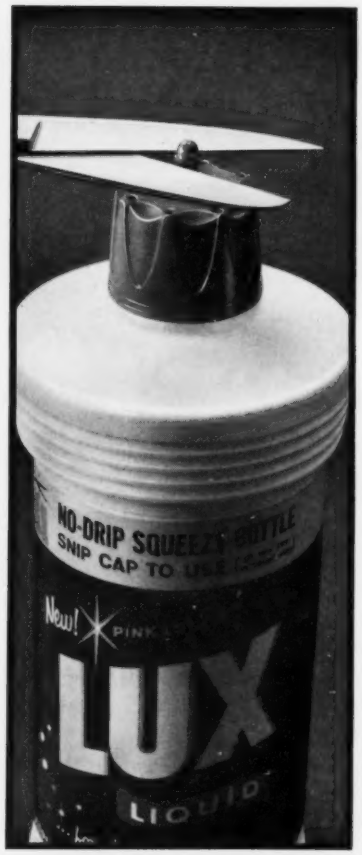
DYLITE packages come in any size or shape; they fit firmly around the product and protect it from shipping damage. They make an attractive display because their smooth, colorful surface won't smear, chip or flake. DYLITE parts molded by: Sullifoam Products, Willow Grove, Pennsylvania.



## *Plastic changes the face of compacts*

If you've been to a cosmetic counter recently, you've probably noticed a new look in compacts. Many cosmetic manufacturers have switched to plastic cosmetic cases because they cost less and make a better-looking package.

One plastic that has helped revolutionize the compact field is DYLENE® polystyrene. It's a designer's plastic; you can choose from over 15 formulations with balanced properties. DYLENE molds easily in a wide range of colors in a smooth, glossy finish. It is lightweight and has good heat and shock resistance. These compacts were molded by Augusta Plastics, Bronx, New York.




## *New cap has a "snip-off" tip*

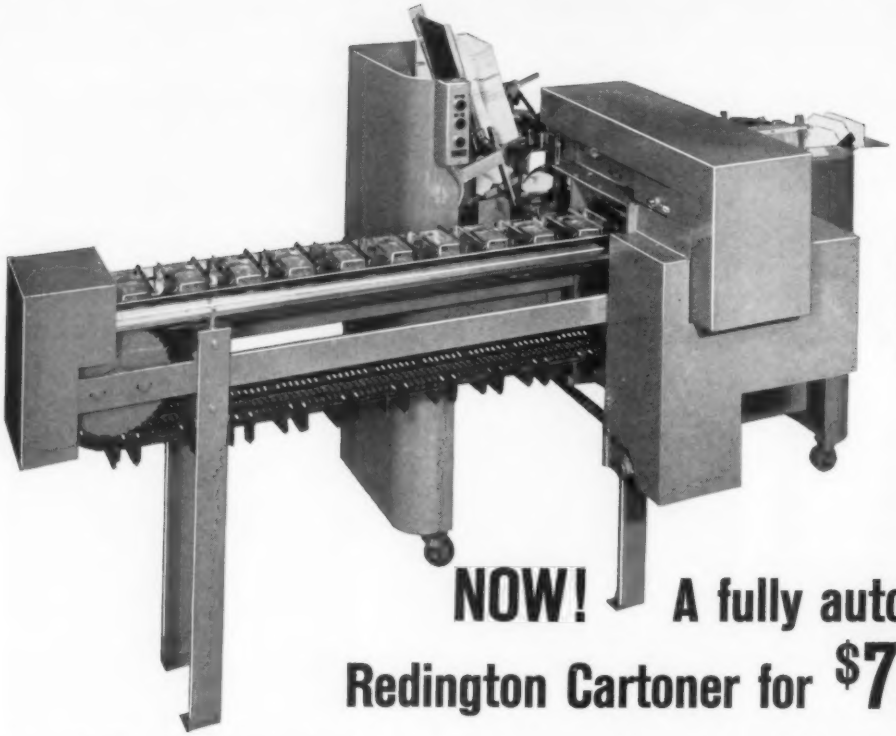
This convenient feature has captured the fancy of time-saving housewives. They just scissor the top of this new DYLAN® polyethylene cap and get a measured flow of Liquid Lux with every squeeze of the bottle. There's no more burdensome measuring by capsful. This new cap tightly grips the neck of the bottle . . . no drips, no leaks.

DYLAN caps have a smooth, glossy finish that won't chip or dent. They're lightweight, rust-proof and they can be molded in any size, shape or color. Molded by: Augusta Plastics, Bronx, N. Y., Formold Plastics, Blue Island, Ill., Gibson Associates, Inc., Cranford, N.J.

**KOPPERS PLASTICS**

***Find out how Koppers family of plastics can better your package at less cost. For complete information, write Koppers Company, Inc., Plastics Division, Dept. 1520, Pittsburgh 19, Pa.***

KOPPERS



Efficient and compact, the Automax Cartoner requires only 30″ x 70″ floor space. Connects directly to 220-volt electric line.

# NOW! A fully automatic Redington Cartoner for $7,500.00

## New Automax with pocket intake handles wide range of sizes without change parts

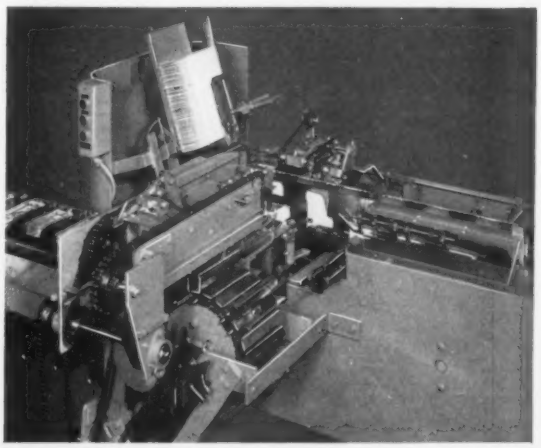
Now the Redington Automax Cartoner is fully automatic! A new pocket intake provides completely automatic feeding of bottles, tubes, jars, tins, auto parts, electrical components and many other types of products into cartons. Its operating speed of 72 per minute is timed to that of labelers, bottle and tube fillers and other complementary equipment.

This new Automax fills an important need in the intermediate volume market for a low cost machine that can quickly and easily be changed over from one size to another to allow for shorter runs of a variety of products. Size range of cartons is:

| | Length | Width | Thickness |
|---|---|---|---|
| Minimum | 2″ | 1″ | ¾″ |
| Maximum | 7″ | 4″ | 2½″ |

The Automax is available in a Standard (semi-automatic) model and in a fully automatic model with belt intake for special applications. Optional equipment also available for end panel printing and coding, and automatic safety detectors.

If your cartoning requirements fall within the range of this machine, you can't afford to do without its many cost-saving advantages. For further information, write, wire or call Redington Division, Crompton & Knowles Packaging Corporation, 3000 St. Charles Road, Bellwood, Illinois, or our nearest sales office.



Fully automatic, continuous operating equipment forms carton, inserts package or product and closes both ends automatically.

CROMPTON & KNOWLES C&K PACKAGING CORPORATION

Stands out in PACKAGING

Since 1897 REDINGTON

AUTOMATIC MACHINES for CARTONING WRAPPING • SPECIAL PACKAGING

**CROMPTON & KNOWLES PACKAGING CORPORATION**

**Holyoke, Mass.** **Bellwood, Ill.**

**NATIONAL SALES AND SERVICE OFFICES:**

NEW YORK • CHICAGO • CLEVELAND • ATLANTA
DALLAS • WINTERHAVEN, FLA. • TORONTO • MONTREAL

*a specialized engineering organization offering a complete line of automatic packaging machines . . . and prompt, nation-wide service.*

## *Hold labels tight under all climatic conditions with* **THERMA-TITE**

- THERMA-TITE Bottle Label Adhesive for high speed machines gives instant tack, provides excellent coverage and bonding strength.
- THERMA-TITE is formulated to adhere to cold bottles without crystallizing and withstands thermal-shock caused by sudden exposure to heat or cold. It works equally well with automatic or semi-automatic bottle labeling machines and will label warm and moist bottles subjected to all storage conditions, including refrigeration.

MORNINGSTAR-PAISLEY, INC.

630 WEST 51st STREET, NEW YORK 19, N. Y.

*Adhesives / Starches / Gums / Specialty Chemicals*

Offices in 28 principal cities from coast-to-coast. In Canada: Morningstar-Paisley of Canada, Ltd., Toronto

# Transwrap S-750 **produces over 50 two-pound bags a minute** for Seabrook Farms

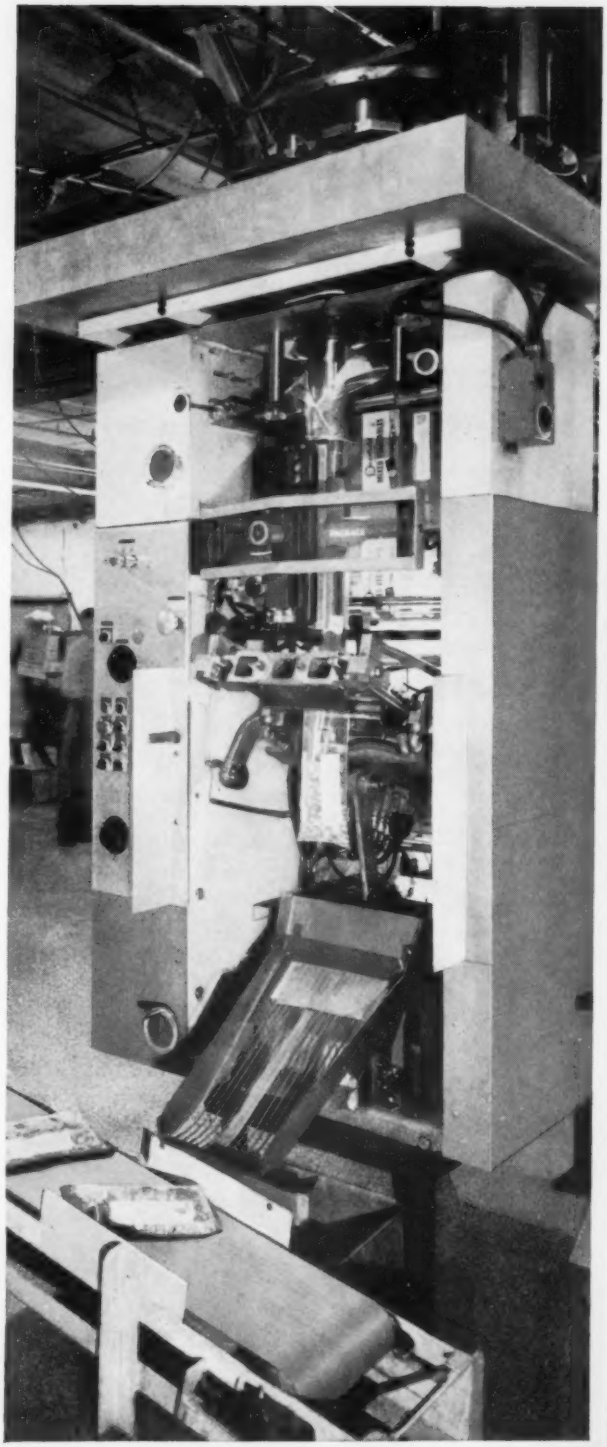
To package the well-known Snow Crop and Deerfield lines of quick frozen peas, beans, corn and mixed vegetable combinations, Seabrook Farms is using the new Package Transwrap S-750. This machine automatically forms, fills and seals at the sustained production rate of 50 bags a minute, using 2½-mil printed, registered polyethylene from roll stock. This more than doubles previous output with other filling and sealing methods.

The Transwrap S-750 offers you these cost-cutting features that mean speed, flexibility and efficiency in any packing plant:

- Size range from 3″ to 15″ long, 2″ to 8½″ wide.
- Up to sixty 1½-mil poly bags a minute with a single tube, easy speed adjustment.
- Smooth, straight pull on material, even at high speeds, by spring-counterbalanced, crank-operated drawbar.
- Improved paper feed operates faster, eliminates film distortion.
- Tight, positive impulse sealing of ends and longitudinal seal.
- Rapid film and size change-overs.
- Handles a wide variety of plastic and heat-sealable films.

Operating and maintenance convenience are built into each Transwrap S-750, too. Ask your Package representative to tell you how the many cost-saving features of this machine will benefit your packaging operations.

At Bridgeton, N. J., Seabrook Farms is pouch packaging frozen vegetables in polyethylene for its 1½-lb. Snow Crop and 2-lb. Deerfield labels on this Transwrap S-750. A second machine is scheduled to go into operation in the near future.



***PACKAGING IS PART OF YOUR PROFIT PICTURE***

PACKAGE MACHINERY COMPANY, EAST LONGMEADOW, MASS.

NEW YORK • PHILADELPHIA • ATLANTA • BOSTON • CLEVELAND • CHICAGO • KANSAS CITY
DALLAS • HOUSTON • LOS ANGELES • SAN FRANCISCO • SEATTLE • TORONTO • MEXICO CITY

**PACKAGE**

# it's good business to package paper products in *OLEFANE**

These attractive Kaycrest Gift Wrappings by Papercraft Corporation are packaged in tough, crystal-clear AviSun Olefane film. Labels are beautifully flexograph-printed in white, gold and black.

## . . . the tough new polypropylene film

Kaycrest Gift Wrapping is another of the famous paper products now being packaged in Olefane—for many good reasons, including:

**LONGER PROTECTION:** Films formerly used tended to break, run and leave products unprotected. Brawny Olefane doesn't become brittle or deteriorate with age. Products stay clean and saleable almost indefinitely.

**GREATER SALES APPEAL.** Other films, with sufficient toughness, lacked good clarity. Olefane is crystal clear, warm and inviting to the touch—neither too stiff nor too limp. Gives products sparkling "buy appeal".

**BETTER PRINTABILITY.** Olefane has just the right slip to print smoothly on high-speed presses. Its minimum stretch under web tension means better register in multi-color printing.

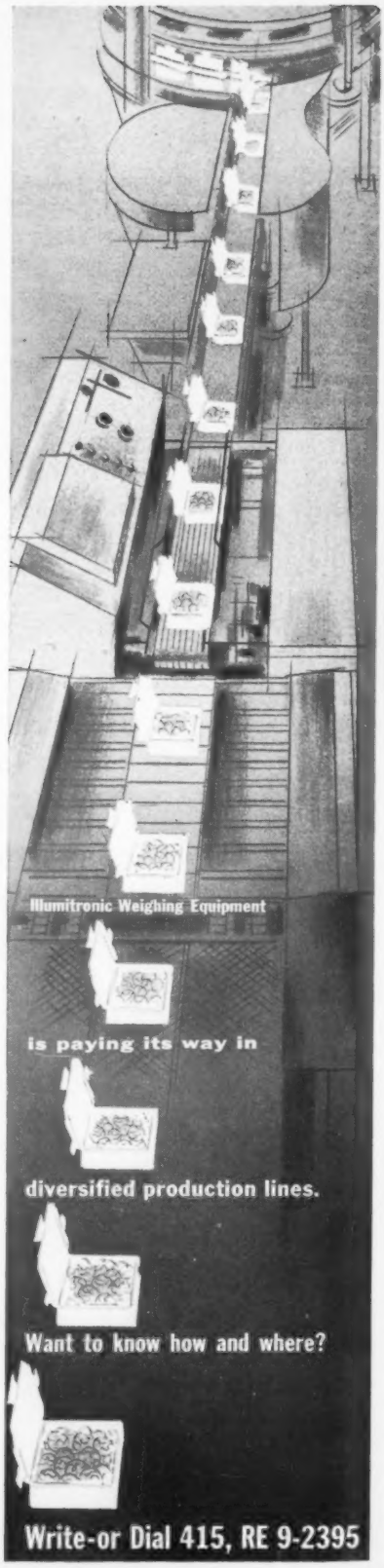
**MORE FILM PER POUND.** Lightest of all transparent films. Gives more square feet per pound . . . costs less to use.

Olefane is being used in new packaging applications every day—from foods to lampshades. New production facilities, now under construction, will soon be ready to meet the growing demand for this versatile new packaging film. Send for Booklet AO-100, giving complete information on Olefane.

AVISUN

**AVISUN CORPORATION**
Dept. 527, 1345 Chestnut St., Philadelphia 7, Pa.

*a trademark of AviSun Corp.

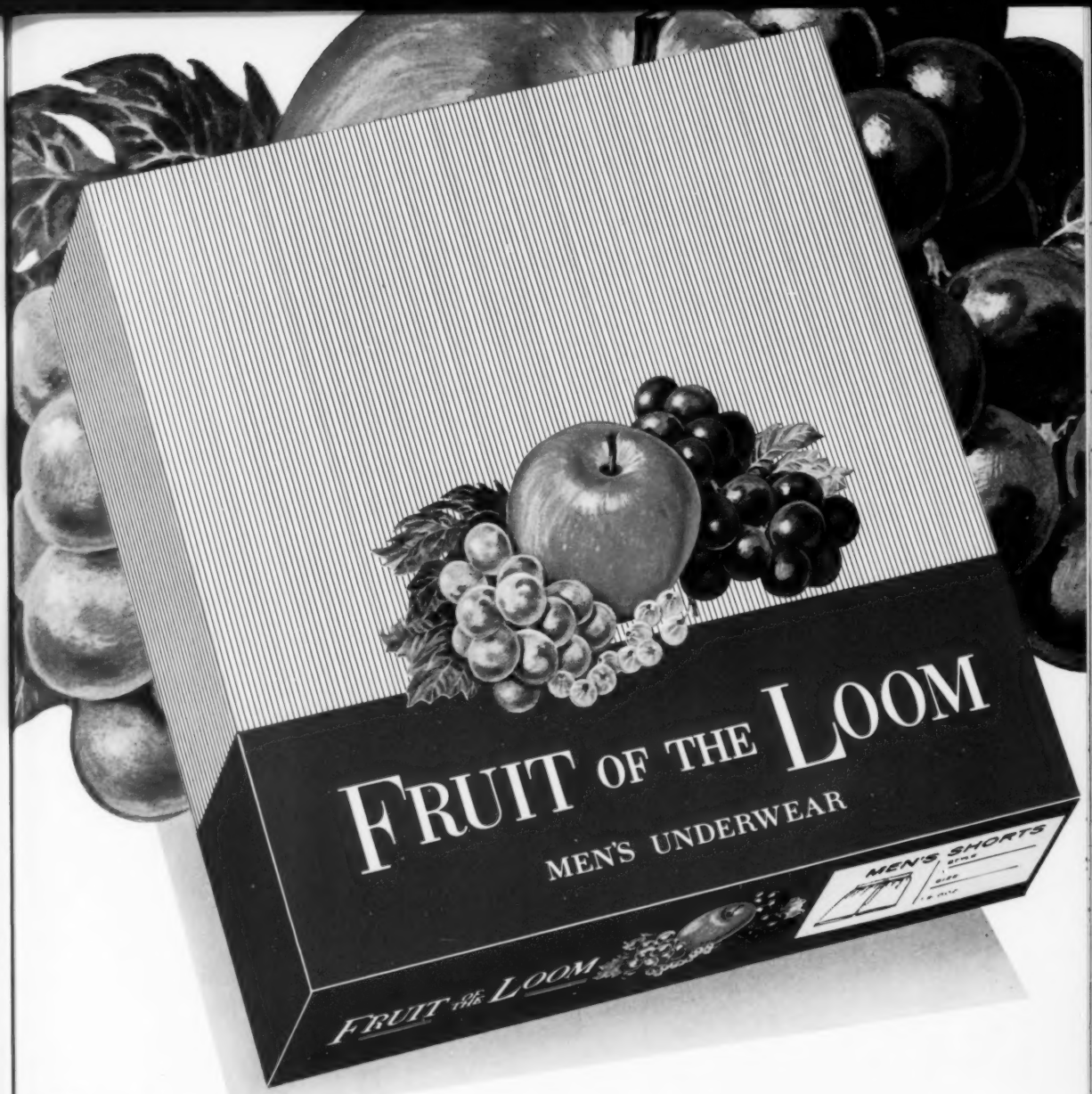

Illumitronic Weighing Equipment
is paying its way in
diversified production lines.
Want to know how and where?
Write-or Dial 415, RE 9-2395

## AUTOMATIC WEIGHING *IN MOTION*
## changes 'fill safe' to 'weigh safe'

Multiply your 'fill safe' factor times your package output. The final $ give-away could put an Illumitronic Weight Classifier or Monitor in your line. The lower your package price, the more urgent your need to investigate the economies of automatically weighing in motion with featherweight accuracy. Our equipment handles weights to 10 lbs., with continuous flow speeds to 300 units per minute. Accuracy ±1/30th ounce. Multiple channels for 2, 3, 4, and 5-way classifying of cartons, bags, pouches, tubes, cans, or products unsupported by packages.

**CANNER?**
**ASK ABOUT OUR HIGH SPEED WRAP-AROUND LABEL INSPECTION EQUIPMENT!**

**illumitronic systems corporation**
680 EAST TAYLOR • SUNNYVALE, CALIFORNIA




# Quality . . . A Profitable Tradition

There's a valuable lesson in merchandising for all to see in the success story of Fruit of the Loom men's and boy's underwear.

First and fundamental, of course, was product quality. But many consumers can't judge that on their own. So . . . since back in 1938, Union Underwear Co. Inc. has been using Sutherland *quality* cartons for their instantaneous quality impression to prospective customers.

And customers got the story—to make Union Underwear the largest producer in the world of men's and boy's underwear!

Fruit of the Loom underwear cartons have been outstanding in their field, as is this new design that is lithographed in full color to tie-in with other promotion programs.

There's a representative near you to show you this and other Sutherland packaging successes. Write now to make sure he sees you soon.

KVP SUTHERLAND

..the paper people

KVP SUTHERLAND PAPER COMPANY
KALAMAZOO, MICHIGAN

**For more information circle No. 232 on Reader Service Card**

# How a unique Owens-Illinois model helped bring "glass cans" to brewers

**Newest beer container** on the market is what many call the "glass can," others such names as "Handy" or "Shorty" bottle. It combines the advantages of glass with the disposal convenience of cans. It's a glass bottle—yet lighter, shorter, more compact than any used previously. Already it is the largest volume item produced by glass container manufacturers.

This 3-piece adjustable model of a bottle played a big role in its development.

Owens-Illinois created the first no-return beer bottles in 1935. Since then they have successively devised ways to make them lighter and shorter.

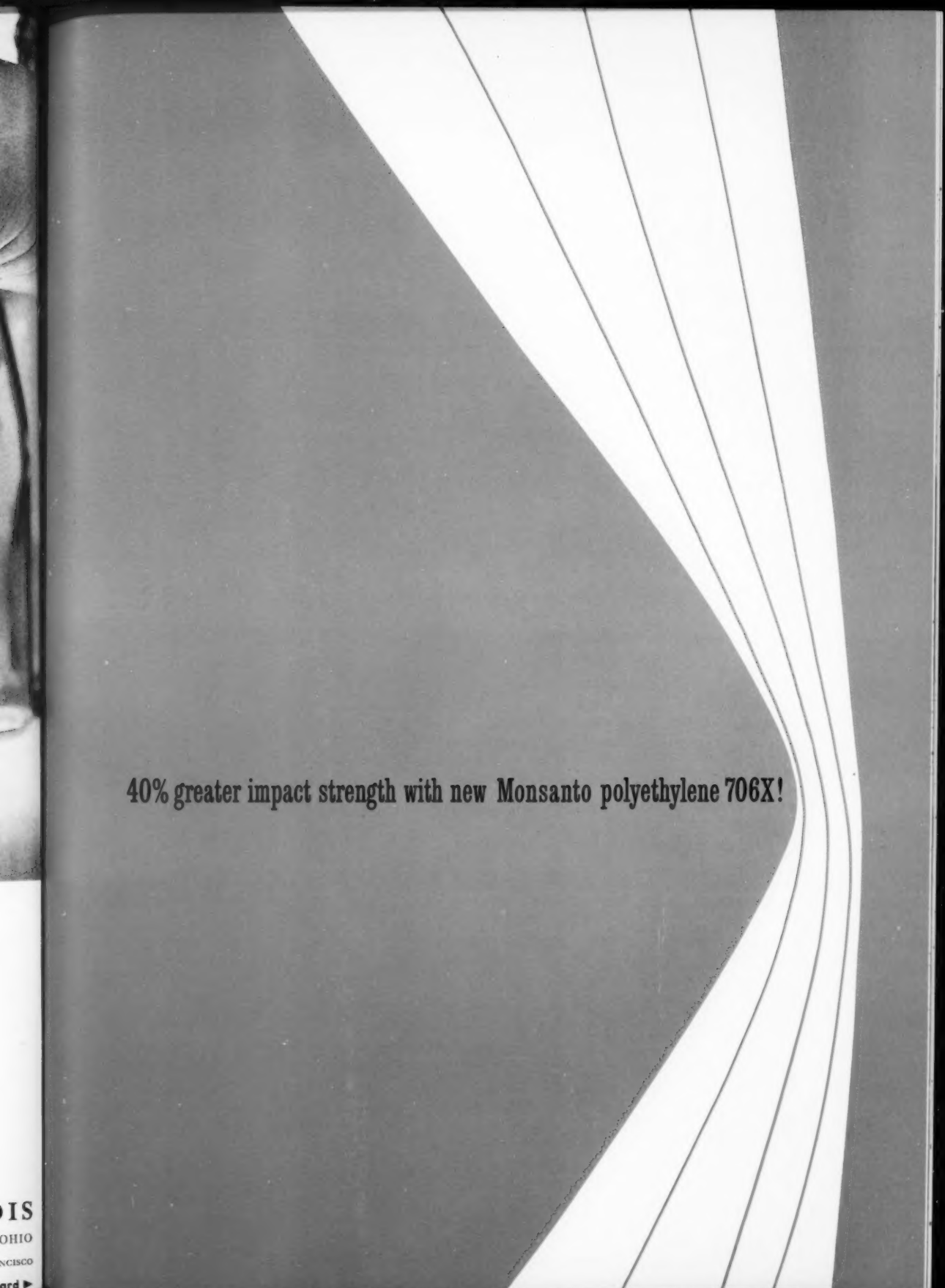
To help them find the best shape to fit brewery processing lines, O-I engineers created the model. Experiments with it on various types of bottling equipment helped in deciding the final shape of the new glass bottle.

This is a typical Owens-Illinois approach. It illustrates why so many new and improved containers bear the mark of Owens-Illinois.

NO-DEPOSIT, NO-RETURN BOTTLES
AN (O-I) PRODUCT

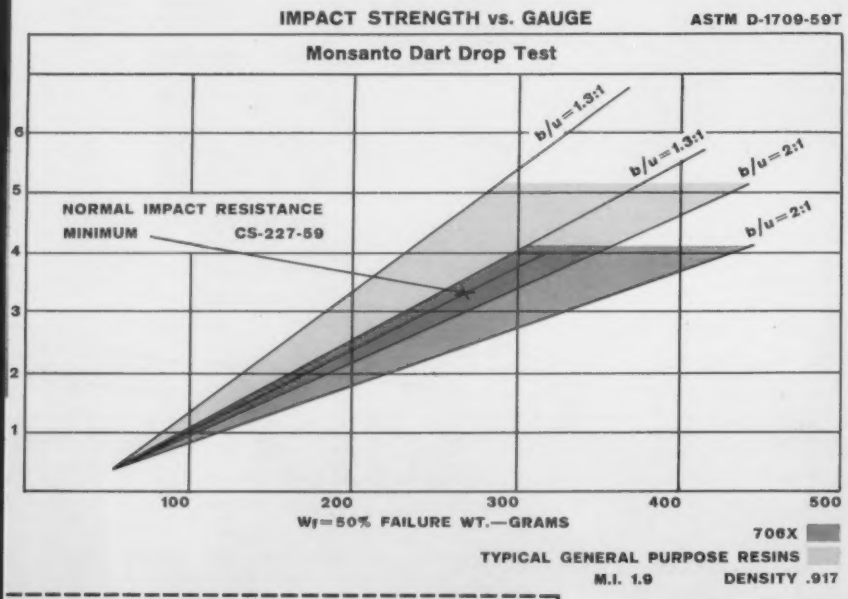
OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO
PACIFIC COAST HEADQUARTERS • SAN FRANCISCO

For more information circle No. 233 on Reader Service Card
Circle No. 234 on Card ▶


40% greater impact strength with new Monsanto polyethylene 706X!

MONSANTO BRINGS OUT THE BEST IN PLASTICS

**ANNOUNCING POLYETHYLENE 706X,** a new super high impact film resin, for industrial packaging, construction and agriculture . . . *at no increase in price!* Film extruded from 706X has demonstrated 40% higher impact strength than film from any general purpose resin in the drop-dart test (See Chart). It is available in 4 degrees of slip, has the same physical appearance as regular 706, the same unique blend-to-blend, bag-to-bag uniformity, the same excellent and consistent processability, *and the same price!* Send coupon below for new Technical Service data sheet on MP 706X, to Monsanto Chemical Company, Plastics Division, Room 819, Springfield 2, Massachusetts.




b/u = BLOW-UP RATIO = CIRCUMFERENCE OF TUBE / CIRCUMFERENCE OF DIE

MONSANTO CHEMICAL COMPANY, Plastics Division. Room 819, Springfield 2, Massachusetts.

Please send me:

☐ 706X Data Sheet—Film and Resin information
☐ Names of leading suppliers of film made with 706X

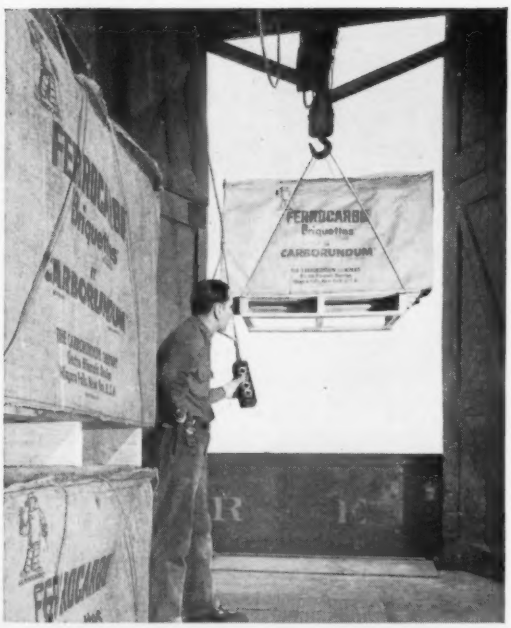
NAME..... TITLE.....
COMPANY.....
ADDRESS.....
CITY..... ZONE..... STATE.....

MONSANTO

Monsanto

IT'S BOUND TO BE BETTER WITH USS STEEL STRAPPING

# Round Steel Strapping carries the load at Carborundum... cuts costs in half!



Slings made from strong 8-gauge USS Round Steel Strapping hoist 2500-pound palletized loads of "Ferrocarbo Briquettes" at the Electro Minerals Division of Carborundum Company. According to Mr. S. E. Eggleston, Supervising Engineer, "We needed a safer method for lifting our briquette loads. Normally, we use steel strapping just for bundling and palletizing, but we found that these preformed slings were strong enough to lift heavy loads. And the USS Model G Strapping Machine gave the right tie so the slings wouldn't break, slide, or deform. They lift, carry, and lower our loads safely and securely . . . and cut our material costs by 50%."

The loads consist of 30 briquette cartons tied down by USS Round Steel Strapping . . . it makes a neat, compact package. The entire strapping operation including the lifting slings takes Carborundum only 6 minutes. Round steel strapping cuts labor time 10%, eliminates shipping delays, ends customer complaints because merchandise arrives undamaged.

U. S. Steel Supply furnishes both round and flat steel strapping, automatic and semi-automatic strapping tools . . . and our strapping specialists are ready to assist you in *any* packaging, palletizing, and car-loading operation. For more information, send the coupon.

USS TRADEMARK

**U. S. Steel Supply**
**Division of**
**United States Steel**

U. S. Steel Supply
U. S. Steel Corporation
208 South LaSalle Street
Chicago 4, Illinois

Please send me more information on USS Round and Flat Steel Strapping.

Name_____

Company_____

Address_____

City_____ Zone____ State_____

## LARGE SIZE... SMALL SIZE... ANY SIZE...

Cleveland Containers are functionally designed to protect and "sell" your product . . . *and at low unit cost!*

Sturdily constructed of quality paperboard or transparent plastic, Cleveland Containers are made to specific product needs with: —

**CLOSURES** in many styles and diameters in metal, plastic and paper.

**LINERS** of parchment, glassine, aluminum foil or plastic film.

**LABELS** in a colorful selection of styles for brilliant display.

The services of our Packaging Engineers are available without charge.

# CLEVELAND CONTAINERS INCREASE SALES

*Illustrated above* — These containers, ideally designed in 8- and 16-oz. sizes, for a powdered soap, have these built-in features: **1**—Sturdy fibreboard construction; **2**—Bright, waterproof aluminum foil label; **3**—Attractive, smooth-working plastic closure; **4**—Non-rusting, metal bottom; **5**—Perfectly sized for effective display, and handy use in the home and shop.

The new "DIAL-O-MATIC" closure! Made of plastic, the wheel smoothly glides and locks in 3 positions: close . . . pour . . . sift! Recessed rim permits locksure stacking. Available in several styles, diameters, and color combinations.

*Write for our latest Packaging Brochure*

THE
# CLEVELAND CONTAINER
COMPANY

**6201 BARBERTON AVE. • CLEVELAND 2, OHIO**

ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

**CLEVELAND CONTAINER CANADA, LIMITED**
Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

**Plants and Sales Offices:**
Cleveland
Chicago
Memphis
Dallas
Los Angeles
Plymouth, Wis.
Jamesburg, N. J.
Greensboro, N. C.

**Sales Offices:**
Detroit
New York City
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▪

Abrasive Division at Cleveland

Riegel

# *Creative Climate for Tomorrow's Packaging*

...the new ideas come from

Riegel

"Flavor fresh" inner packs . . . four sealed units containing three biscuits each . . . keep Nabisco Shredded Wheat oven-fresh and crumb-free. Just open them as you need them. For the best in protection . . . and sales appeal . . . Nabisco uses a special opaque cereal wrap by Riegel.

Whether you need the last word in protection and convenience . . or eye-catching sales appeal . . . or simply economy . . . Riegel can help. You'll be interested in the new, broader range of Riegel materials and services. Write today.

RIEGEL PAPER CORPORATION, 260 MADISON AVENUE, NEW YORK 16, NEW YORK

*Specialist in the packaging of foods, drugs, and soft goods*

*Flexible packaging...carton board...folding cartons...carton liners*

# *Bacteria barrier for BAND-AID Adhesive Bandages... another example of flexible packaging by Riegel*

**BAND-AID Adhesive Bandages are protected with a special sterilizing glassine, made and printed by Riegel.**

Johnson & Johnson sets tough specifications for BAND-AID Bandage packages. The glassine must zip through high-speed machines and seal tightly. Next it must breathe in a torrid autoclave to kill harmful bacteria. And then, once the BAND-AID Bandage is sterilized, the Riegel glassine must keep it that way until the envelope is opened.

Sterilizing at high temperatures may not be your aim, but you'll benefit by reviewing the wide range of Riegel packaging materials . . . papers, films, foils and combinations . . . waxed, coated, printed or plain. Riegel tailor-makes packaging to meet specific needs. Write today . . . for the new ideas come from Riegel.

*Specialty Products Division*
*RIEGEL PAPER CORP., 260 Madison Ave., NYC 16*
*Flexible packaging materials*
*for foods, drugs and chemicals.*

# *Why Burlington brought its new "Eye-dentity" packaging to Lassiter*

**Die-cut inserts, printed 3 colors on Riegel "Foldcote"™... poly envelopes... all elements of Burlington's bright new color-coded packaging come from one experienced source: Lassiter.**

Experience you can bank on... that's why Burlington brought their new Donald Deskey designs to Lassiter. As the leading specialist in soft goods packaging, we understand both sales and production problems. We know how to create packages that will catch the shopper's eye, promote sales ... and fit your production set-up.

This kind of *practical* creative packaging can help you. Write or phone Lassiter today.

*Lassiter Division*
*RIEGEL PAPER CORP., 350 Fifth Ave., NYC 1 • Charlotte 4, N.C.*
*Specialists in soft-goods packaging. Designers and producers of film, foil, paper and paperboard packaging, inserts, riders, labels, bands and tags.*

# *McCormick Seasonings...Another quality food product that now uses Riegel Foldcote™*

**Product displays must be strong, rigid, attractive. That's why McCormick uses display-shippers made of Riegel "Foldcote" board. Printed letterpress in two colors by Guilford Folding Box Co., Div. Interstate Container Corp., Baltimore, Md.**

For noticeably stronger, brighter cartons . . . and extra eye-appeal . . . try Riegel's outstanding new full-bleached carton stock . . ."Foldcote". Super-white for color brilliance, super-smooth for high fidelity reproduction, super-strong for rugged, rigid packages that keep that clean look.

Your future, too, can be brighter with "Foldcote". Ask for samples and information. Ask too, about other Carolina solid bleached boards. Export inquiries invited. Call Riegel today . . . for the new ideas come from Riegel.

*Carolina Division*
*RIEGEL PAPER CORP., 260 Madison Ave., NYC 16*
*"Foldcote" machine-coated bleached boards*
*"Albacel" and "Astracel" pulps*

# BARTELT

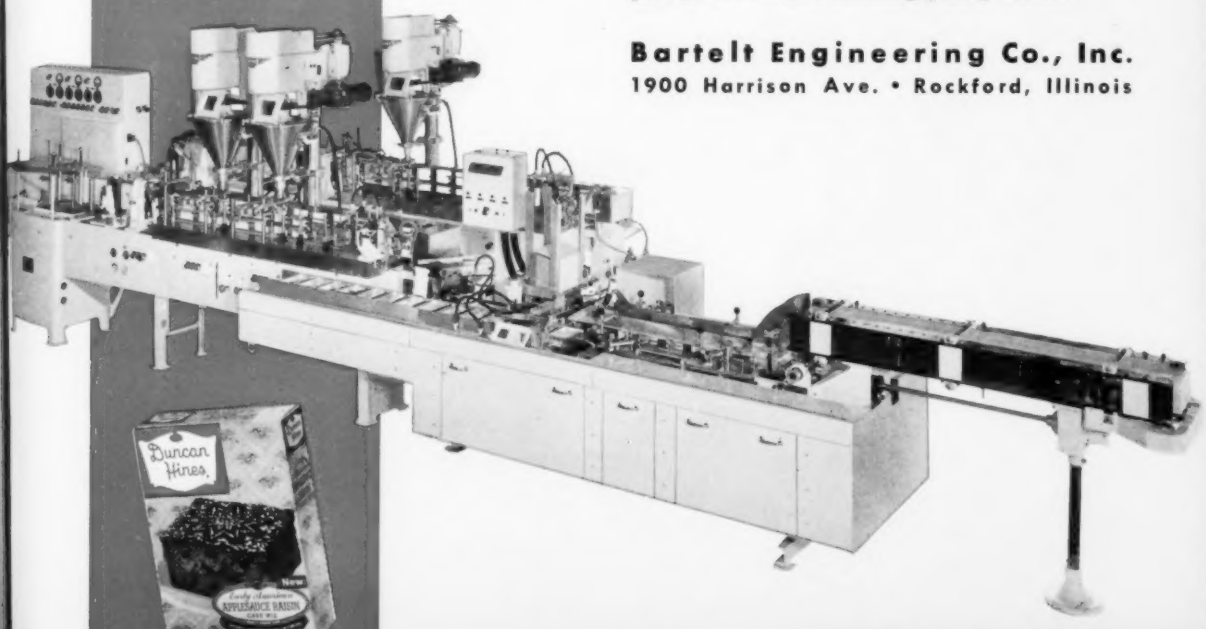
## packaging machinery is on the job for...

## Duncan Hines®

For the packaging of their Duncan Hines line of prepared mix products . . . Procter & Gamble uses Bartelt Automatic Packaging Machinery.

Where package production must yield consistent quality . . . where package standards must build solid consumer acceptance . . . where specialized needs demand creative engineering, Bartelt know-how is at work. Bartelt machinery is providing distinctly superior packaging for the finest of products . . . where unfailing quality counts.

**Bartelt Engineering Co., Inc.**
**1900 Harrison Ave. • Rockford, Illinois**






For more information circle No. 241 on Reader Service Card

TIME 0:02

# Seconds that count in the life of your package

You are looking at the most critical seconds in the life of your package.

When the case is sealed, your investment in product development, manufacture, packaging and merchandising are bonded with a film of adhesive thinner than newsprint. The right adhesive at this time is the way to be sure of the arrival of your product at the point of use in perfect condition. Armour Packaging Adhesives can do exactly that kind of a job for you.

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# Wizard Boats arrive in shipshape condition

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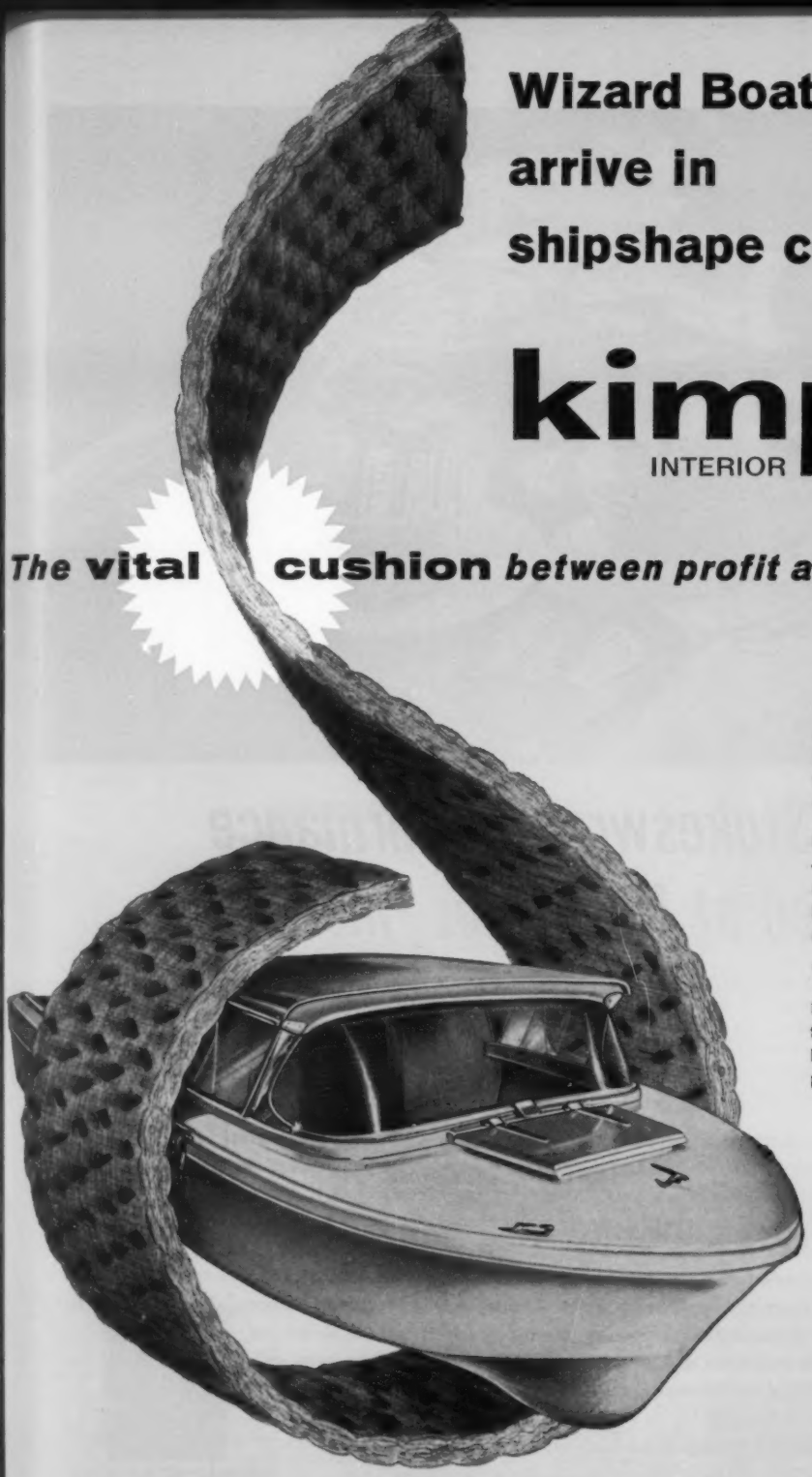

Wizard Boats are seaworthy—built to withstand foul weather and rough seas. But it's the buffeting of overland trips—from factory to dealer—that calls for the protection of KIMPAK interior packaging.

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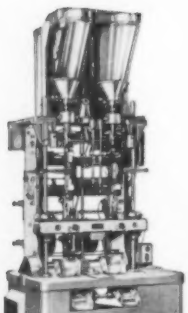
# FMC Stokeswrap performance is proved at Nestlé for "instants"

**At their plant in Sunbury, Ohio, The Nestlé Company depends upon performance-proved Stokeswrap to package "instant" products—tea, coffee and cream. Three FMC Model BS Stokeswraps with auger feed provide fast, accurate filling of all these products with their different flow characteristics. Sizes range from individual servings up to packages with enough product to make a gallon of iced tea.**



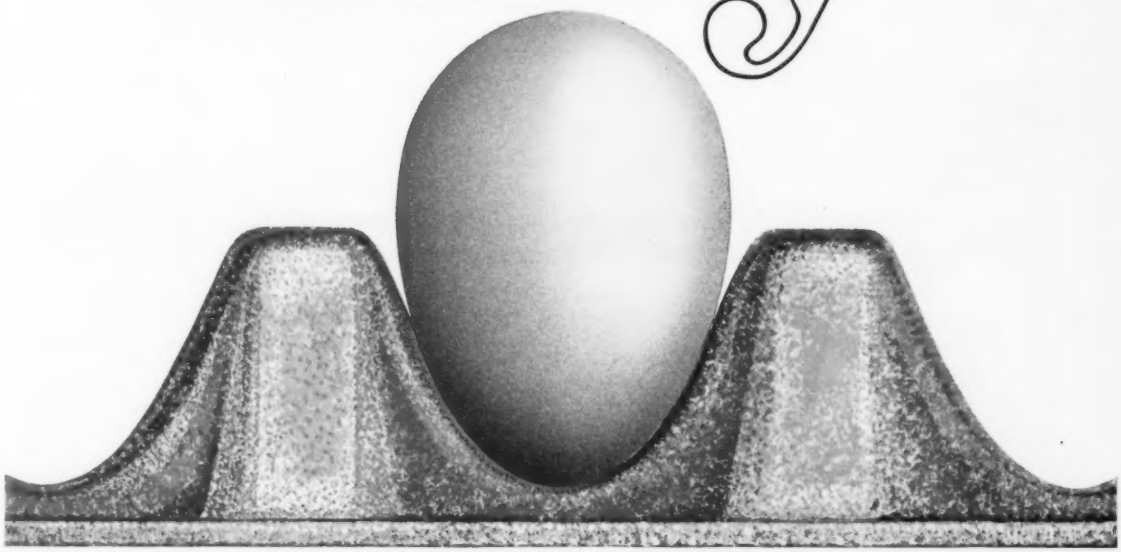
Many producers of instant coffee and tea, like Nestlé, use the Stokeswrap. Most important coffee roasters also rely on the Stokeswrap for automatic packaging of regular ground coffee in institutional sizes up to 8 ounces. • It forms, fills and seals 50 to 100 packages per minute from roll stock of printed or unprinted paper, cellophane, Pliofilm or other heat-sealable material either single-ply, double-ply or laminated. Choice of four-seal type of package illustrated or pillow-type pouches. • For smaller sizes a new 4-tube machine requiring no more space than standard models can increase speeds to as much as 200 per minute. • Another Stokeswrap model forms, fills and seals tea bags—cup, family and institutional sizes. With attachments it automatically staples string to bag and tag to string on cup sizes. • Optional equipment is available for coding, imprinting and gas flushing.

*For the full story of the proved - in - performance Stokeswrap design, write for Bulletin P-801.*

*Putting Ideas to Work*

FOOD MACHINERY AND CHEMICAL CORPORATION
**FMC Packaging Machinery Division**
Stokes & Smith Plant
4994 SUMMERDALE AVENUE, PHILADELPHIA 24, PA.

# Ask any



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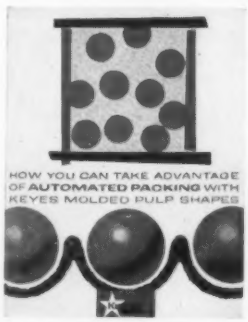


For information and a complimentary copy of Keyes' new booklet, "How You Can Take Advantage of Automated Packing with Keyes Molded Pulp Shapes" write on your letterhead to Mr. Dudley Smith, Product Development Manager, Dept. PE-6 Keyes Fibre Company, Waterville, Maine.

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MOLDED PRODUCTS

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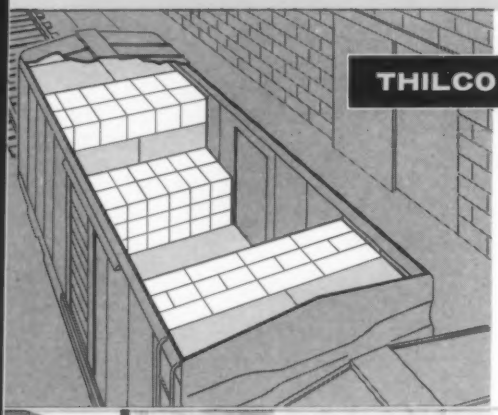
# Heavy-Duty PROTECTIVE Papers



## THILCO RETAINING PAPERS

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Unitized Loading with Thilco WRAP-DRI (Asphalt Laminated) and THILCO-TUF (Blonde Laminated) Retaining Papers is a most effective method for stopping costly "load shifting" damage to bottled, canned or packaged goods in transit. Thilco Retaining Papers tighten boxcar loads and keep them intact under repeated impacts without severe shifting. Load ride is more stable and any wet damage from broken bottles is localized in the car. Write for Brochure containing samples of Thilco's economical line of Plain, Creped and/or Reinforced Retaining Papers for unitized loading.

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# Training a foreman to do his job— and to think, too

**By James A. Remington**
*Production Superintendent*
*Rexall Drug Company, St. Louis*

We sometimes assume that a careful procedure for personnel selection is all it takes to insure good production supervision. However, the training and guidance that new personnel receive during their first year on the job is most important—especially for potential supervisors. We think a training outline, tailored to the experience and background of the new man, helps provide this guidance.

Far too many times a new employee gets little in the way of positive assignments and nothing in the way of guidance to perform whatever duties may fall to him. As a result, he flounders, makes unnecessary mistakes, and becomes disillusioned with his new employer. This is a two-way street that often results in the employer also being disappointed in the new man.

When such an atmosphere develops, even the best trainee has a very difficult time overcoming the situation. Often this reputation for poor results stays with him for years. He may even feel compelled to change employers to leave it behind.

In most cases the new trainee is just out of school and has very little, if any, work experience. Under our present training program, many supervisory trainees go directly into job assignments in the production departments. Their "on-the-job" training is the responsibility of their immediate superior, for example, the department head.

### Build Individual Programs

We prepare an outline of training questions specifically for each new man. The preparation takes into account his academic training, work experience, and new assignment.

The purpose of the questions is to force the trainee to investigate areas of knowledge that will ready him as quickly as possible for decision making in his area of responsibility. Wherever possible the questions require answers in the form of charts, floor plans, lists, reports, recommendations, or other positive evidence of attention on the part of the trainee.

One might feel that, since the trainee just turns to some older employee for the information to answer the questions, it does him very little personal good. However, we are not looking for original thinking at this stage of the game. Instead we want him to build a foundation for effective decision making as quickly as possible in the areas that are pertinent.

*(Turn page)*

**In training key people, some companies indulge in elaborate but passive orientation with little active work for the trainee. Others let a new man jump right in—absorbing know-how from more experienced people. Mr. Remington offers a practical program that prepares a man for foremanship in a reasonable time. It stresses "learning by doing" and calls for plenty of participation—yet stimulates thought by asking the trainee searching questions.**

**MANUAL** assures uniform training yet permits tailoring program for individual needs. Discussion with supervisors supplements manual.

**KEY OF PROGRAM:** Trainee *does* things rather than just observe or listen. By drawing organization chart, he learns job relationships.

We also want him to know and understand management policies and philosophies that affect his area of responsibility. In this way he wastes little time on irrelevant subjects.

### Take Part In Meetings

To supplement on-the-job training and to review the outline questions, there is a weekly meeting of all trainees with the production superintendent who, in this case, is the man to whom the department heads report. If more than one new production supervisor is in training at the same time, these meetings become round-table discussions.

Meetings usually last from one to two hours depending on the time available and the enthusiasm they generate. Questions in the training outline usually provide subject matter, but we permit the discussion to wander as long as it deals with business subjects.

The superintendent lets the trainee do as much of the talking as possible but is always ready to keep things moving when they lag. To promote discussion, questions are phrased so that they require more than a *yes* or *no* answer.

### Use Actual Case History

Since much of the technical data connected with the new job is available from other sources, the superintendent tries to deal with the relationship of the supervisor to working personnel, labor contract points, management philosophy, and company policies. In most instances, reviewing case histories best accomplishes this.

Usually we outline the circumstances of an actual case for the trainees and ask them what they would do under similar circumstances. After they offer their opinions, we relate the recommended solution to the problem and compare it to what actually did happen.

In every case we use an example from an actual incident that has occurred in the production departments. We never use names, but all other details are actual. The trainee can relate these cases to himself because they deal with situations he works with every day.

Basically, there is an underlying theme for each meeting that drives home the responsibility of a production foreman.

For an example of this training, let's look at the contents of an actual outline. The trainee in this case was a college graduate in business administration with two years of work experience after graduation. However, his work experience did not relate to packaging supervision.

### Personalize Training Outline

We personalize each training outline as much as possible. The trainee receives the typed original bound in a fibre cover. Other copies go to his department head, the production superintendent, and our personnel department.

As shown in the training outline, summarized below in this article, we suggest the contents of such a manual should include the following:

1. A title page containing the name of the company, man, and the job for which he is training.
2. An introductory statement covering the purpose and extent of the training outline.
3. A brief history of the company (in our case, three pages).
4. A training time table—very important! Times are general, but the time table gives the trainee an idea of what *we* expect of him and it helps him avoid any floundering.
5. Job responsibility.
6. Orientation questions.
7. Job training questions.
8. Miscellaneous material related to job needs.

### Start Of Program

Taking as an example a training outline prepared for one prospective foreman in the tablet packaging department, we find first a one-page introduction:

"You are starting on your first work assignment with Rexall. Your entire business career will be influenced by your efforts and results in this first assignment.

"If you can establish a reputation

**Training Timetable**

| | |
|---|---|
| Nov. 16, 1960 | First day of employment. Complete basic personnel department requirements. Start orientation. |
| Nov. 29, 1960 | Have orientation completed. |
| Dec. 2, 1960 | Turn in list of safety rules for tablet department. |
| Dec. 9, 1960 | Turn in label display. |
| Dec. 30, 1960 | Turn in cleanup list. |
| Jan. 30, 1961 | Have completed all material in the training outline. |
| Feb. 17, 1961 | Turn in report on training program. |

and record of reliable results, the value to you will be immeasurable.

"Your formal training will only last a few months, but your informal training will go on indefinitely. Your success or failure will depend on no one but yourself.

"This program does not presume to cover all areas of your training at Rexall. It is merely a guide to provoke thought in general directions.

"On February 17, 1961, please submit to the production superintendent a one-page report. The content of the report should be the strong and weak points of your training and suggestions for improvement."

Next, in little more than three typewritten pages, the manual reviews the history of the Rexall Drug and Chemical Company. Besides orienting the trainee in the development of the company, it also gives him a basis for encouragement because it stresses the outlook for Rexall's future.

### Follow A Schedule

Next there is a timetable for the completion of the training program. (See Page 58). The specific dates change for each trainee, of course, but the basic time sequence remains the same.

### Foreman's Responsibilities

Following this comes a short statement of the job responsibilities of a packaging foreman:

1. Safety: Operating without injury to personnel or equipment.
2. Quality: Producing a product that meets the written and unwritten standards of the company at all times.
3. Quantity: Meeting production deadlines and maintaining maximum output with the tools and personnel available.
4. Cost: Initiating methods and improvements that lead to the most efficient and most economical operation possible.
5. Housekeeping: Keeping our work area neat and clean at all times through regularly assigned cleanup operations.

The responsibilities above are listed in the order that you should apply them to each work situation. However, the job is never under control until all five are under control.

**Orientation**

A. Make a complete tour of the plant and grounds. Meet all division and department heads.
   1. How large is a bay?
   2. How many square feet are there in each of the five major buildings?
      "A" building _____ "B" building _____
      "C" building _____ "J" building _____
      Power house _____
   3. What are the main activities carried on in each building?
   4. Who can use the employees' store and what are the hours?

B. Have a desk and chair assigned.

C. Draw an organization chart of top management showing titles and general duties.

D. Draw an organization chart of the department heads and associated employees. Indicate the name and number of each department.

E. 1. Make an appointment with the personnel director to discuss employee benefits and plans, employment procedures and standards, the plant safety program and fire procedure, and contract high points.
   2. Read, study, and know all provisions of the union contract.
   3. In what way does the company try to hire qualified people?
   4. Schedule a time to take the employment aptitude test given to new male employees.

F. Spend at least one hour in each packaging department.
   1. List the general type of product produced in each.
   2. What was the average number of employees in each department for 1959?
   3. What is the largest single controllable factor of cost for each department?
   4. Suggest five housekeeping improvements for the tablet packaging department.
   5. Which packaging department has no personnel? Why? What problems does this cause?
   6. What was the annual production for each department in 1959? How does 1960 compare so far?

G. Schedule several hours with the assistant production superintendent to discuss in detail the manufacturing departments.
   1. Draw a schematic flow diagram for the manufacturing of Super Plenamins (multivitamin tablets). Show elapsed times and operations performed from ordering material to delivery of coated tablets.
   2. Draw a flow diagram for the manufacture of Mi 31 (antiseptic solution).

### Getting Oriented

The next two pages cover the orientation work (see box above). The questions give the trainee specific things to do; for example, Items C and D call for two organizational charts showing specific individuals by name and by place in the company structure. This starts with the president of the company and runs through the trainee. Thus, the trainee orients himself to other key people in his department and in the company itself.

### Searching Questions

Next come four pages devoted to job training—the core of the program. (See Page 60.) Note that these ask specific questions the trainee must answer—most of them calling for *more* than a *yes* or *no*.

Next in the manual there is an insert from a printed directory of our company showing its principal officials and divisions. Also a part of the training manual is a mimeographed memo from the president and a copy of "Positive Personality," an article by Lawrence A. Appley, president of American Management Association, appearing in *Management News*, June, 1958.

*(Turn page)*

**James A. Remington** is a graduate of Iowa State University with a B.S. degree in general engineering. Prior to joining Rexall, he was with Procter & Gamble Company in Cincinnati and Iowa City. His assignment included department manager, safety engineer, employment head, and chief job study engineer. After joining Rexall, he was assistant production superintendent prior to becoming production superintendent.

### Job Training

A. Packaging:
   1. Distinguish between bottle types:
      a. Mold: Rexall private, dry line, Blake, shelf-line, toilet goods, tablet, fluid, etc.
      b. Size.
      c. Color: flint, amber, Maryland blue.
   2. Familiarize yourself with label descriptions:
      a. Single, half wrap, full wrap, wing and wing.
      b. Make up a display showing all these types.
   3. Investigate closures:
      a. Finish (size) and shell.
      b. Liners and backings.
   4. Bands: Celons and cellulose.
   5. Cartons: folding and folding packing.
   6. Packers and reshippers.

B. Production scheduling:
   1. Follow the steps in completing a given finishing order.
   2. Make a flow diagram of the routing of finishing and manufacturing orders.
   3. When is it permissible to deviate from the specification of a finishing order?
   4. How can you have a finishing order changed?
   5. List, in writing, the safeguards against errors in production.
   6. What is the best ticket size for our packaging lines?
   7. How far ahead should you have your production scheduled?

C. Operator training:
   1. Why does good operator training make your job easier?
   2. Who should do the training of packaging operators?
   3. Spend several hours doing each job on a tablet department line.
   4. Take a short course in job instructor training.
   5. Develop a list of key department personnel showing names and seniority, also list other personal facts about your personnel that will help you know them better.

D. Department cleanup:
   1. Who is responsible for cleanup in the packaging departments?
   2. Write a list of regular cleanup jobs that are needed in the tablet packaging department. Assign a frequency and time to complete each job.
   3. Estimate the total man-hours needed for cleanup per week in that department.
   4. Why should management put so much emphasis on cleanup?

E. Quality:
   1. Where can you find the quality limits for a job?
   2. What control does production have over quality?
   3. Who is responsible for quality on the line?
   4. Can you inspect quality into a product?
   5. How is the line O.K.'d before a new run is started?
   6. What daily quality checks are made on the line?
   7. What is the FDA? How does it affect our work?

F. Costs:
   1. Where can you find out the actual and ideal wage costs for the job?
   2. What control can we exercise over wage costs in the plant?
   3. What positive program can you offer to improve efficiency in the packaging department? How can you make the people efficiency conscious?
   4. Estimate what the scrap material from the tablet packaging department is worth for an average day. Include bottles, bulk, caps, labels, cartons, etc.

G. Wage system:
   1. What are operation codes and how are they used? Why do we have them?
   2. Become familiar with all entries on the daily IBM time tickets. Make a flow diagram showing all steps for these IBM tickets.
   3. How do the weekly time cards fit into the picture?
   4. Study the plant wage scale for production workers.

H. Equipment:
   1. Draw a floor plan showing the location of all equipment in your department.
   2. Make an equipment list with names, model numbers, identification numbers and other important data. Indicate equipment capacities (bottle sizes, speeds, etc.).
   3. What is the lubrication frequency for each piece of equipment? Who is responsible for lubrication?
   4. Is our daily equipment cleanup adequate?

I. Safety:
   1. List the major hazards in your area.
   2. What fire equipment is available to your people?
   3. Do they know which exit to use in case of fire?
   4. Do they know where the nearest alarm box is?
   5. Is there any periodic check of safety made in the plant?

J. Bulk:
   1. Meet the tablet manufacturing supervisor. Have him show and explain the major types of equipment in his department.
   2. What is a bulk clearance?
   3. Who allocates bulk in the tablet packaging department?

### Building Morale

Next comes a one-page statement entitled "17 axioms for improvement of employee morale":

1. A dangerous policy in handling subordinates is to ignore them.

2. Issue your instructions in the form of a request whenever possible.

3. Supervisors should make prompt decisions whenever possible.

4. Workers are hungry for commendation; a "pat on the back" stimulates effort.

5. An indirect method of praise is to ask the worker for his opinion on the methods or progress of a job.

6. People resist change; tell workers in advance of changes which will affect them—surprises upset people.

7. Intelligent employees have the right to know the reasons that lie behind rules and company policies and organizational setups.

8. Give each worker an answer to the vital question which is in every worker's mind: "How am I doing?"

9. It is better not to have a rule than to have a rule of which you permit frequent violations.

10. Every employee is entitled to thorough instruction in the duties he is to perform, the best methods to use, and the standards by which you judge his work.

11. Make corrections with fairness and consideration.

12. Criticism given in the presence of fellow workers is apt to be unnecessarily embarrassing.

13. Ambitious employees are eager to broaden their knowledge of operations outside their own department.

14. The belief that the boss is showing favoritism is highly destructive of morale.

15. You never build wholehearted employee cooperation on a foundation of fear.

16. No promise that the boss makes is unimportant.

17. Discipline and personnel policies should be firm but consistent.

**TRAINEE** must study plant property and equipment to answer training questions. He gets help from others but does his own digging.

**ANSWERS** that trainee must prepare make him distinguish each container and label, let him see how each fits into plant's operations.

**NO MERE PASSIVE OBSERVER,** foreman trainee actually spends several hours doing each packaging line job in selected departments.

### Fire, Safety Pointers

Now follows a section containing 11 mimeographed pages on fire prevention and protection, and on safety. This is a copy of material widely distributed throughout the St. Louis plant so that everyone knows who does what in event of fire. This emphasizes the importance of first calling the St. Louis fire department. It stresses that any effort by employees to put out a fire is simply a stop-gap until the municipal fire department arrives.

Also part of the training manual is a two-page set of instructions for stapling corrugated packaging, complete with diagram.

### Housekeeping Tips

A memo on housekeeping suggestions particularly pertinent to packaging line operations also is in the manual. These suggestions are:

1. All boxes, when not in actual use, should be closed. If stored for more than 24 hr., the flaps should be sealed with tape to keep dust from contents.

2. Materials stored on pallets should be uniformly stacked. The edges of the material should be in line with the edges of the pallet.

3. Pallets should be parallel to the wall, floor sections, or equipment, whenever possible.

4. Packing materials and tools should never be placed on machine guards or stored on other parts of a machine.

5. Packaging materials should never be stored directly on the floor.

6. Roller tables should be stored in a designated area when not in use. When in use, they should be lined up parallel to the wall or floor sections or machinery.

7. Chairs, when not in use, should be stored neatly in a designated area.

8. Clean and dirty rags should never be left lying around. They should be put in their proper containers.

9. Empty product containers (tubes, bottles, jars, cans, caps, etc.) should never be left exposed. Even during a lunch hour, dust and dirt can settle in them.

10. Packing materials should be returned immediately to crude stock after a job is completed. The line should be clear before the next job is started.

11. Packing materials dropped during line operation (caps, cartons, tubes, bottles, etc.) should be picked up immediately by the operator who drops them. Spills and jams should be completely cleaned up before line operation is continued.

12. Any glue spilled on floor or equipment should be wiped up immediately. There is never an excuse for hardened glue on machines or floor.

### Reference Aids

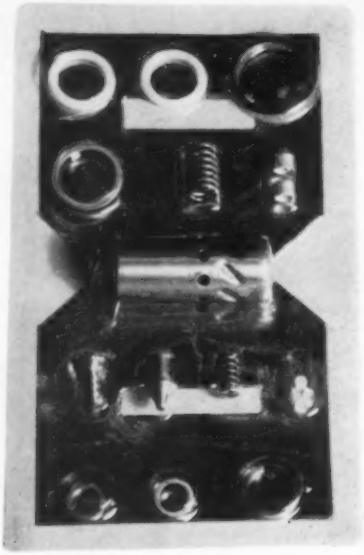
Other parts of the manual include specific instructions for filling out maintenance orders (including sample forms), a maintenance parts checklist, a list of operation codes for manufacturing and packaging, and a wage rate scale for the drug department. The final page of the manual is a telephone directory of departments and key individuals at this plant.

### Summary

In summary, we should remember this:

1. Have a *written* program.
2. Have a learning *time table.*
3. Make assignments that require *more* than a *yes* or *no* answer.
4. Clearly outline the *responsibility* of the trainee.
5. *Supplement* the work of the outline by having training meetings.
6. *Follow up* to evaluate its effectiveness.
7. Make *one person* responsible for the training. ***(End)***

**1 COMPLETE PACKAGE** at right (front and back) results from operation shown on opposite page. Package consists of tray with cavities to fit parts, die-cut insert (black area under parts), and pressure-sensitive printed label. Parts are within easy reach of packagers (opposite page). Counting is unnecessary—workers readily see where and how many parts go in each package.



2915
REPAIR KIT
1 EA
DELAVAN MFG. CO.
11348

USED ON FUEL NOZZLE ASSEMBLIES 11345 AND 11845

| PART NO. | NAME | QTY |
|---|---|---|
| 2040A | SPRING | 1 |
| 2043 | PACKING | 2 |
| 2256 | SPRING | 1 |
| 2258 | SEAL | 2 |
| 2287 | LOCKPIN | 4 |
| 2865 | SEAL | 2 |
| 3251 | POPPET | 1 |
| 7031A | WASHER | 1 |
| 9054 | SEAL | 2 |
| 9276 | PISTON | 1 |
| 10612 | RING | 1 |
| 11078 | CAP | 1 |

# New blister package cuts costs . . .
# . . . even for low-volume product

**By Stanley E. Farnham**
*Project Engineer*
*Engineering Services*
*Delavan Manufacturing Company*
*West Des Moines, Iowa*

A new custom-designed thermoformed plastic package has substantially reduced costs of packaging our fuel-injector repair kits. Resulting in an over-all labor saving of 61 per cent, the package (see Fig. 1) eliminates counting the parts during the packaging operation, and simplifies inspection of the finished package.

Consisting of 75 per cent *fewer* components than our old package, the new one protects the parts of the repair kit from abusive handling and contaminants. It keeps the parts separated. All in all, we have maximum protection at minimum cost.

### The Old Package

Each repair kit consists of 18 small precision parts (made of aluminum, Teflon, and corrosion-resistant steel) for turbojet engine fuel injectors. Formerly, we packaged the parts individually in pouches and vials and put them (plus a sheet listing all the kit parts) into a large heat-sealed pouch.

When we started packaging these repair kits, we selected this method because we stock two standard sizes of pouches for spare parts: 2½x3 and 3x5 in. Using two standard sizes means quantity purchases and simplifies our spare-parts packaging operations. The pouches are inexpensive and meet military specifications: MIL-B-117, Grade A, Type 1, Class C to meet Method 1C-1 of MIL-P-116.

### Looked For New Package

The packaging operation using pouches was too time-consuming and costly for the small volume of fuel injector repair kits involved. We needed several pouches and vials for each kit to meet requirements of separate packages for parts made of different materials—to prevent damage to the delicate parts.

Because of the time required to

**How Delavan makes a thermoformed package (its own development) which has 75 per cent *fewer* components than the former package and gives an over-all labor saving of 61 per cent in the packaging of fuel-injector repair kits.**

package the kits and the complexity of the package, a change was necessary. We set our objectives and studied various package types.

## OBJECTIVES

As target objectives, we wanted a package that would:

1. Meet our general goal of maximum protection at minimum cost.
2. Allow packaging the parts individually, or somehow keep them separated.
3. Eliminate counting the parts during packaging, yet reduce errors in quantities.
4. Keep the parts safe from abusive handling and contaminants.
5. Have fewer components than the old one.
6. Simplify inspection of finished packages.

## APPROACHING THE PROBLEM

One of the first methods we considered in attempting to achieve these objectives was the thermoformed plastic blister pack. We have always been intrigued by the possible use of formed plastic sheet, but for the low-volume repair kits, conventional methods of thermoforming did not appear to offer savings. Because of the low quantities involved, tooling and equipment necessary for a design seemed too expensive.

We looked at skin packaging, whereby the actual parts are the molds, and the plastic is drawn skin-tight over them. This would give us a sealed package, and the parts would be separated and adequately protected. This method, however, required the purchase of a machine or packaging by a custom former—again too costly for this low-volume item. Further, the repair kit parts are small, and keeping them in place on the cards during the forming cycle presented other problems.

### Is A Tray The Answer?

Our answer seemed to be a thermoformed plastic tray. But what kind of tray, and how could we get around expensive tooling costs? We found ourselves in the old dilemma a packaging engineer faces when he wants a custom-designed package but lacks the quantities to justify the costs.

We believed the thermoformed tray would meet all our objectives, *if* we could keep the costs down.

### Problems With Thermoforming

After studying the machines available, we found again that the small quantities did not justify a capital expenditure for equipment. Initial contact with custom formers also discouraged us because of the cost involved for low quantities.

Thermoforming is economical only when production runs are sufficient to amortize the costs of custom-made dies. Some custom formers told us that a custom-designed package could rarely be produced economically in the small quantities we wanted.

We considered various methods of using a slide-off blister and card. They were unsatisfactory because

**2 PLACING PLASTIC TRAY** into home-made epoxy resin fixture is first step of package assembly. Fixture supports package during loading of parts, allows burnishing label to insure tight seal.

**3 TRAY CAVITIES** are contours of parts, assuring correct placement (second assembly step) and correct number of parts in each package. No counting is required, thus faster packaging.

they lacked protection from contaminants; also, the thin flat seals would not hold the card tightly to prevent its slipping out of the package.

### Package Must Be Sealed

The answer, if there was one, had to come from some kind of sealed package. One obvious way to seal the package was to use a heat-sealing machine. Again, however, because of low quantities and the question of applicability of the machine to other packages, we were unwilling to purchase a new sealing machine.

To have an economical thermoformed package for the repair kit, we had to find a way to keep tooling costs at a minimum, yet provide contoured cavities to hold the parts snugly. We also needed a method of sealing—preferably one not requiring the purchase of sealing equipment.

## SOLVING THE PROBLEMS

We solved these problems and developed an economical thermoformed package (see Fig. 1) for the repair kit. Today, thermoformed tray packages of 0.0075-in. cellulose acetate butyrate are effecting substantial savings.

How was this accomplished?

### Used Parts To Make Mold

We solved the problem of dies to form the tray cavities to hold the repair kit parts by initially using the parts as a mold. We placed actual parts on the forming area of a laboratory-size vacuum-forming machine and positioned them in the pattern we wanted. Using clay to provide the necessary draft, we drew a sheet of plastic over the "molds."

We poured plaster of Paris into the formed cavities and worked it to form the final shape of each mold. Preparatory to making production molds, we formed several plastic sheets from the plaster-of-Paris mold. Aluminum-filled epoxy resin, poured into the formed sheets, gave us our finished production molds.

This method of making the forming dies was quick and inexpensive. It helped greatly in keeping total costs down for the project. Using a small vacuum-forming machine, we made our blisters at a rate of 30/min.

### Label Seals Package

We selected a pressure-sensitive label for a back piece to close the package and thus solved the sealing problem. To protect the parts properly, we must have a permanent petroleum-resistant adhesive that adheres tightly.

The label is easily attached during package assembly and requires no sealing equipment. We purchase the labels cut to size and printed with all the information we formerly carried on a sheet inserted into the large heat-sealed pouch.

### Use Inserts As Stiffener

A die-cut insert, placed between the label and the tray, prevents the parts from contacting the adhesive on the label. Actually, this insert

**Stanley E. Farnham** is a graduate of Drake University with a B.A. degree. He has also studied at Central Missouri State College and Kansas City University, and has credits toward an engineering degree. Prior to joining Delavan (where his basic responsibilities include packaging, and engineering publications), he was with the Westinghouse aviation gas turbine division, engineering department, more than three years.

**4 AFFIXING INSERT** (home-made from surplus material) to label keeps parts from touching adhesive, helps stiffen packages, permits using thinner, less expensive plastic sheet for tray.

**5 "LABELING" PLASTIC TRAY** is final assembly step. Pressure-sensitive label, which adheres tightly, serves as back of package, seals package, and provides proper protection to the parts.

adheres to the adhesive. It is enough smaller than the label—it leaves an exposed adhesive area about ¼ in. wide around the label perimeter—to effect the seal.

Each half of the insert has a die-cut rectangular opening (see Fig. 1) to provide sealing at two places toward the center of the tray. This proved necessary to insure that the parts would not slip from their tray cavities. The insert also helps stiffen the package and permits using a thinner, less expensive plastic sheet for the tray.

Again, we kept our costs low by making the inserts from surplus barrier material we had in stock—we die-cut the material with a simple, inexpensive steel-rule die. The inserts were "clicked out" quickly.

The labels and inserts are flat and require very little storage space. The thermoformed trays nest together and also require little space.

Components of the package thus include a thermoformed tray, insert, and back piece (label). After trying several thicknesses of plastic, we selected cellulose acetate butyrate, 0.0075 in. thick, to form the trays.

At this point, the only remaining problem was to provide a fixture for assembling the package. The package requires some support during loading so that the label can be burnished to insure a tight seal without upsetting the package. Using the plastic tray as a mold, we cast several fixtures from epoxy resin.

We sent prototypes of the new package to our customers for approval and to insure that the new package would not create problems for them.

## ASSEMBLING THE PACKAGE

One employee can package six kits in the new thermoformed package in the time formerly required to package one using the old method.

### Requires No Counting

During assembly, the girl places a thermoformed tray into the assembly fixture (see Fig. 2), then places a part into each cavity (see Fig. 3). Because the cavities are formed to the contours of the parts, there can be no mistake as to the placement or the number of parts. No counting is necessary.

After loading a tray, the girl places the insert on the label (see Fig. 4) and attaches the label to the tray (see Fig. 5). Burnishing the edges to insure a tight seal completes the packaging operation.

## CONCLUSIONS

The new thermoformed package meets all our objectives. Our inspectors can glance at a finished package to determine if the correct parts (and the right number of them) are in each kit. *All* parts are visible. Each is separately enclosed and fully protected by contour-fitted thermoformed plastic.

### Less Costly To Load

The functional simplicity of the package makes it less costly to load. We have reduced the number of package components from 12 to 3, shortened the packaging time, and eliminated all extra marking. Assembly of the new package is much faster and has resulted in a 61-percent saving in labor. Material costs are about the same as with the old package, but the new one weighs less and occupies less space.

With the former package, one could easily lose small parts—such as the four Teflon lockpins—while opening the package. In the new plastic package, with the parts fully visible, this is less likely to happen. The adhesive used provides a tough permanent seal which protects the parts from contaminants and abusive handling. *(End)*

# Before you use hot-melts

- ✓ Check heat source
- ✓ adhesive placement
- ✓ open time
- ✓ bond closure

**By John C. Eldridge**
*Product Specialist, Adhesives*
*United Shoe Machinery Corporation*
*Boston*

Use of the new higher-molecular-weight hot-melt adhesives is increasing—due principally to demands for higher machine and packaging line speeds. The hot melts' characteristic of instant set fulfills these demands. Solvent- or water-base adhesives cannot keep up with the packaging machine speeds desired. Their need for drying time requires pressure sections, but the use of 100-per-cent solid hot melts eliminates such sections.

As these new materials become more attractive to the packaging engineer, he is wise to consider both the advantages and limitations of the systems available. Both come to view in considering the following factors identified with the efficient applications of hot melts:

1. Adequate and efficient heat sources.
2. Proper adhesive placement.
3. Short open time or time lapse from application to closure.
4. Positive closure.

## THE HEAT SOURCE

Any means of melting applied to these hot melts must take into account their relatively high viscosity at application temperatures. The conventional heated pot is not satisfactory, as these compounds will not withstand long pot life and will not freely circulate.

One device that efficiently solves the problem is a modification of the conventional extruder. Here the adhesive comes in the form of pellets or granules. Another system features adhesive in cord form. These are metered into melting devices for application through either a wheel or a nozzle.

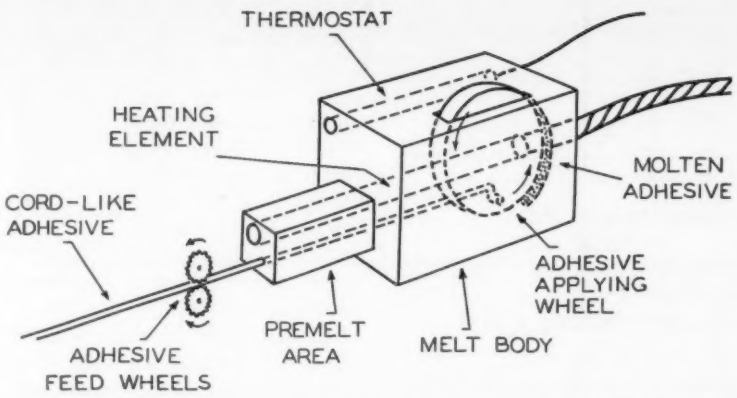
With each of these commercially available devices, you must use care to see that their heat transfer capacity is adequate. While only a few ounces are in a melted state at any one time, new 100-per-cent solid material is constantly feeding through and taking out heat.

It is not enough to reduce the material to a molten state for application. The molten material must be at a temperature adequate for bonding. These new adhesives vary in specific heat, and the capacity of an applicator to melt and dispense them must be adequate for the highest heat requirements.

### Apply Near Heat Source

The melting device must be of such size and power requirement that it can be mounted conveniently on, and driven easily by, the parent machine. Size and mounting position must be such as to not im-

**Today's high-speed machines demand fast-setting adhesives. Although hot melts possess this quality, they also have limitations, due mainly to their high viscosity at application temperatures. Mr. Eldridge discusses the points—heat source, adhesive placement, open time, bond closure—you must watch for successful use of hot melts.**




**1 HEAT SOURCE** is tubular element. Aluminum premelt section and melt body give uniform heat transfer to adhesive fed in cord-like form. Smaller volume of premelt block discharges more heat, thus lower temperature in this area. Thermostat gives adjustable control.

pair the operator's function. Adhesive feed must be convenient and must not demand an excess of attention. Thus, the more compact or adaptable the heat source, the more readily it can be integrated (at the adhesive system) into your packaging equipment.

When the point of adhesive application is in cramped spaces, the user many encounter trouble. These higher-molecular-weight hot melts do not lend themselves to long transport in the molten state. This is a limitation, for if the means of applying is not compact enough, or adaptable enough to allow location close to the point of application, the system is not suitable.

A further requirement is that of metering. Since these materials are too viscous to flow readily by themselves, the melting device must pump *uniformly* at each operating speed, but must *vary delivery* in accurate proportion to the rates of increase or decrease in the parent machine.

### Heat Control Vital

Finally, you must properly control the temperature of the melting device. Adhesive formulations vary in correct application temperature. To meet temperature requirements readily, it is desirable that equipment have means for easy adjustment. Normally these hot melts are melted and dispensed in temperatures from 325° to 500°F.

Heaters and thermostats tied into adjustable and automatic control systems maintain temperatures at desired levels. Speed of work, the type of material and the mass or design of the equipment itself determine the final setting to make on each of several temperature controls.

The applicator areas in contact with the adhesive, from which the heat transfers, must be hot enough to bring the adhesive to temperature as it flows through. During idle periods, the temperature of these areas must drop to "standby settings" to prevent overheating.

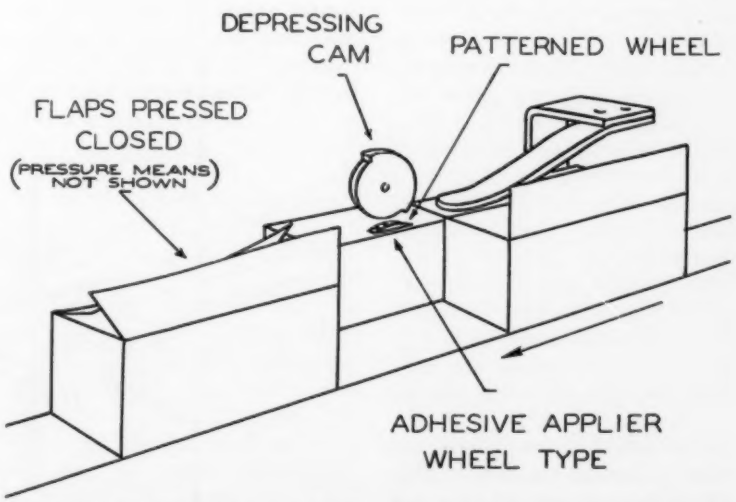
Fig. 1 shows a typical hot-melt applicator using adhesive in cord-like form.

### ADHESIVE PLACEMENT

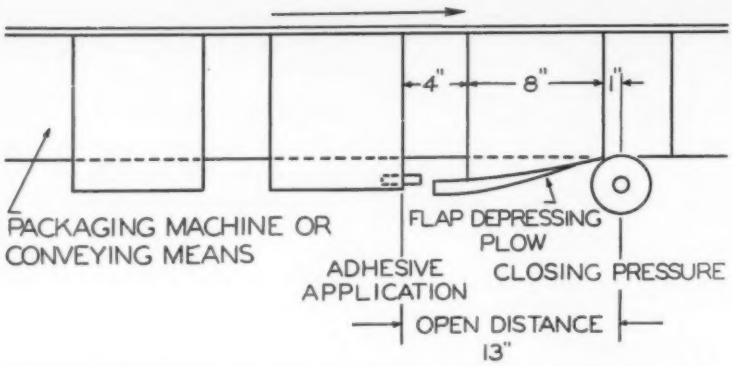
If you give attention to exact metering in the selection of the hot-melt dispenser, you facilitate proper placement of adhesive. To deposit the adhesive properly, you should consider a number of factors, including the heat conductance and surface temperature of the substrate or adherent, the proximity of proper pressure, the stability and strength of material, and the economics of the process.

### Preparing To Bond

For example, in the sealing of a polyethylene-coated foil, the foil layer carries away the heat rapidly, with the likelihood that the adhesive is too cold at the point of closure unless compensated for. To correct this possibility, you increase the amount of adhesive deposit to gain more heat. Or with the proper nozzle, you deposit the adhesive in a round form rather than a thin band to minimize surface contact until pressure is applied. Pre-heating of the surface to be bonded is often helpful and practical even at relatively high speeds. *(Turn page)*




**2 ADHESIVE PLACEMENT** is controlled by guiding flap of shipper over patterned applying wheel. Timed cam above forces flap down onto wheel which applies five to seven adhesive spots in center portion of flap. Immediately after application, flaps are plowed closed.




**3 SHORT OPEN TIMES** are common with hot-melt adhesives. Space between adhesive application and closing pressure is held to 13 in. At belt speed of 100 ft./min., open time is 0.65 sec. After point of firm contact, bond is complete, requiring no further pressure.

When you need penetration into open material, it is wise to extrude the adhesive in a bead that will fall directly into the nips of the pressure rolls. Thus you achieve penetration before any chill due to contact takes place.

In the bonding of kraft paper of various weights, you get maximum fiber tear at minimum cost by wiping out the seam instead of pressing or flattening out a bead at the point of pressure. This takes place at the point of application. A limitation here is the danger of heat loss before closure. The broad 0.002-in. band should not be less than 0.002 in. thick.

### Use Of Wheels

When hot melts are applied by means of gluing wheels to intermittent or separated pieces as in carton closing, adhesive placement is again an important factor. On one varnish-coated carton, a satisfactory bond resulted from changing from a flat surface wheel to a concave configuration. An arched band or bead of adhesive holds the heat better.

By applying dots (see Fig. 2) with a pocketed wheel instead of a continuous line in carton closing, it is possible to achieve necessary shear strength and still impart an easy-opening feature. Cigarette cartons so closed are easy to open for affixing local state tax stamps. Other types of cartons that you open and reclose with a tab can be sealed with an adhesive pattern that releases without damage to the carton.

In carton closing with the new hot melts and the wheel type applicators, you can take advantage of the fact that only a small amount of adhesive is held in the molten state with no reservoir behind the wheel. This allows the gluing wheel to be inverted or placed on its side with no leakage.

This has given flexibility to packaging lines and broadens design possibilities for packaging machines, with regard to the efficient placing of the adhesive bond.

## OPEN TIME

The hot-melt bond gets its strength upon cooling. However, this takes only an instant—a much sought advantage—but to get it, you must meet certain conditions. The adhesive must remain at the proper molten temperature from the time of placement until closure or the application of pressure.

This period is the "open time." It is a function of the distance from application to closure and of the speed of the work. This should be as short as possible. Open times as brief as 0.05 sec. are desirable and maximum times run from 0.2 to 1 sec. or more, depending on the adhesive and the general conditions of the application.

A useful formula for determining open time, or one of the other essential measurements—open distance, speed of the work—is

$$T = \frac{5D}{V}$$

where $T$ is the open time in seconds, $D$ is the open distance in inches of travel, $V$ is the belt speed in ft./min., and the numeral "5" is a constant. In a given packaging situation, this formula establishes a desirable relationship between these elements.

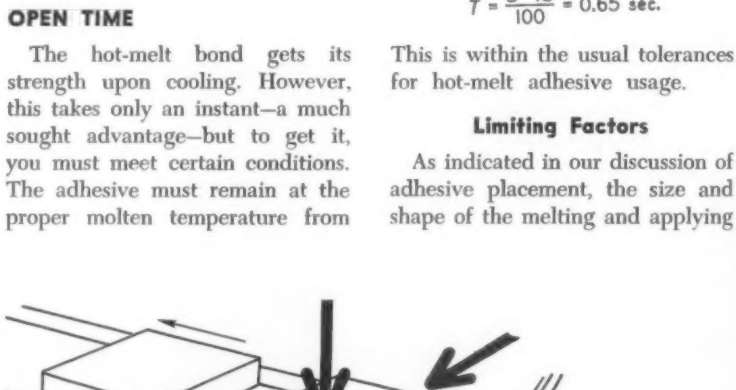
In Fig. 3, note that the open distance is 13 in. To find the open time at a belt speed of 100 ft./min., we use the formula above as follows:

$$T = \frac{5 \cdot 13}{100} = 0.65 \text{ sec.}$$

This is within the usual tolerances for hot-melt adhesive usage.

### Limiting Factors

As indicated in our discussion of adhesive placement, the size and shape of the melting and applying




**4 BOND CLOSURE** of cartons where contents do not support from within needs rails, hold-downs, or other means to keep cartons square, free from buckling under closing pressure.

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means becomes a major related factor in achieving minimum open time. Another limiting factor is the machine space needed to bring the two surfaces together. In bag machinery, for example, the distance can be relatively short. This is particularly true when taking advantage of small nozzles.

On the other hand, carton closing may require much longer distances for closure, as the carton must be folded into exact position before sealing. Because hot melts set instantly and you cannot adjust or position the closed bond, accurate assembly is requisite. This is generally no problem with carton flaps and other package forms.

## BOND CLOSURE

When the hot-melt adhesive is compressed between the materials to be bonded, heat dissipates to the substrates. If the material has a texture as in unfinished paper or fabrics, the molten material flows around the fibers before chilling, to get mechanical attachment. On films or coatings, such as polyethylene, the dissipating heat effects fusion to the substrate.

Only momentary but firm pressure is essential in using hot melts. The degree of pressure is difficult to indicate or gauge in advance and equally difficult to identify when satisfactory. In initial operation, you usually increase the pressure until the work begins to distort. Then you relieve the pressure slightly.

On some continuous-web machinery, the draw rolls that pull the web usually furnish an ideal source of pressure. It is important to note that hot-melt adhesives are not "killed" by draw-roll pressure as are many wet adhesives.

### Knacks Of Roll Use

Often a simple steel roll suspended on an arm is sufficient for pressure. Although rolls are most common, strips of spring steel or floating weights also serve.

When pressure rolls are not on a fixed shaft, they are frequently spring-loaded. While the weight of the roll is adequate for the job, the spring tension arrests vibration and bouncing. When independently suspended, rolls may be canted to prevent wrinkle and to help control the work.

### Problems With Cartons

In carton closing, you often apply pressure against the end of the carton where the package offers no support, or has nothing for the pressure source to "lean" on. (See Fig. 4.) If the contents are solid, there is some support from the full carton.

If side and top guides hold the carton securely in the conveyor, rigidity transfers to the end. Rolls may serve as sources of pressure here, but frequently sufficient pressure for closure comes from the guide that closes the flap or lip.

Unlike the conventional wet adhesives, the new hot melts do not require sustained pressure or a pressure section. Once you apply pressure, the bond is complete and the package is ready for casing or the next operation.

This usually results in substantial savings of space, and this knowledge can assist the packaging engineer in the efficient planning of the line. In various installations, the savings of space (from the elimination of pressures sections) range from 10 to over 30 ft. in length.

### Keep Temperature Up

The best source of pressure is ineffective if the applied band of adhesive is not up to temperature at the moment of closure. Thus, any stoppage of the line results in unbonded product from the point of application to the point of closure. This distance is usually a few inches. In rare cases, it is 5 or 6 ft., but if economy warrants, this adhesive may be reactivated or reheated for normal closure later.

Being truly thermoplastic, these materials, like beeswax, may be reheated and cooled repeatedly. Although no application now exists, we are intrigued with the idea that a single adhesive application may be closed, opened, and reclosed several times in the life of a package.

## POINTS TO NOTE

Hot-melt adhesives have as their chief advantage the speed with which bonds take place. Increased production, decreases in floor space due to eliminated pressure sections or stacking, and more efficient use of labor result from this speed of bonding.

With hot-melt gluing you can fully realize this advantage through complete automation or speed-up of the packaging line, or through increased productive capacity of packaging machinery in proportion to other plant capacity.

### Minimizing Troubles

With line and machine speeds increasing to take advantage of the quick-setting bond, applicator design demands care to reduce operating troubles to a minimum. Equipment manufacturers found that bearings and seals operating at temperatures around 400°F. introduced new problems.

Although high-heat lubricants and seals of material such as the fluorocarbons were available, they did not prove satisfactory. To keep bearings relatively cool, mounting brackets must have enough mass to allow heat flow away from the area, and they must be firmly attached

to the frame or mounting plates so that the heat can drain off quickly.

Recent extensive field testing of applying devices utilizing hot melt in cord form has resulted in development of special bearings and seals that give good service over long periods. Proper heat draining brackets also proved effective.

In the hot-melt process, you can minimize the adverse effects of heat in the equipment if you take care to run at the lowest temperature commensurate with good bonds. Too often, there are attempts to correct a bond or seam problem by merely turning up the heat. Usually, adjusting the means of pressure or application solves the problem.

To protect the equipment, the packaging engineer should establish an upper limit of temperature. If you cannot adjust the system to produce good bonds under these conditions, you should consult the adhesive supplier specialists. They can assist in a number of ways, such as by varying the viscosity curve of the material. If they also supply the equipment, they can give mechanical service as well.

### A "System" Concept

Because of their unique requirements, the new hot-melt adhesives and the devices that apply them are usually linked together as an adhesive system. Formulations are built for use in a particular applying device.

In one instance, the adhesive in cord form is designed for use in a feeding, melting, and applying device that utilizes an internal "melting wheel" around which the adhesive moves, then passes along on a "first-in, first-out" basis to the point of application. This principle provides exact metering and reduces to a minimum the amount of material held in the molten state.

In another instance, the adhesive is pelletized to facilitate feeding in a conventional extruder. A water-cooled hopper prevents blocking and there are provisions for accurate temperature control.

### Not For Hand Use

Because the sequence of operations is necessarily rapid, hand application of these materials is rarely practicable. Likewise, the danger of degradation, particularly in contact with air, prevents the use of block material in open melt pots.

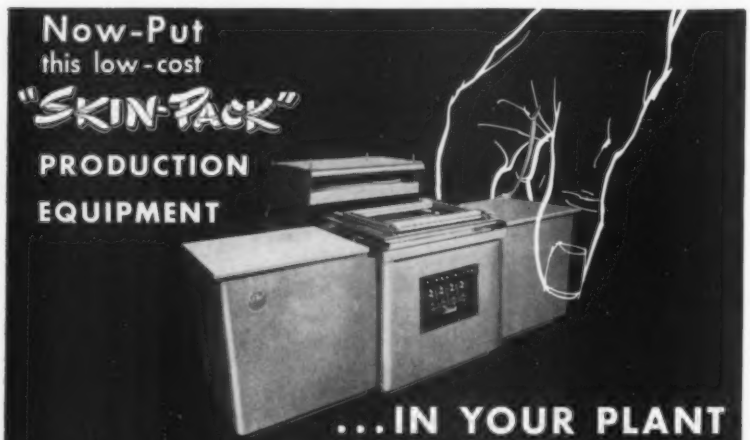
Thus, in evaluating hot melts, one must consider the *system* rather than the individual material or formulation. Bonds achieved by hot-plate melting and hand applying rarely duplicate the quality or economy you can get through the use of an engineered system.

## PLANNING AHEAD

The new high-molecular-weight hot melts are finding extensive use in in-line closing of cartons, foils, printed surfaces, polyethylene coatings, and other packaging materials. It is now commercially feasible to close heavy corrugated sleeves and to attach tear tapes. Several tamper-proof or pilfer-proof closures are available in which the bond exhibits sufficient strength for handling but separates readily and neatly when the package is opened.

Extensive development is under way in the fields of case sealing and the reactivation of previously applied adhesive. Application nozzles built on the ballpoint pen principle are showing promise. Pulsating nozzles to give interrupted adhesive lines are under investigation. Solenoid valves are proving practical for controlling the amount and delivery of adhesive. You can use them in the design of fully automated packaging lines. Packages or flaps can be cammed in a number of ways against applying wheels or nozzles for an infinite variety of effects.

The field is a broad one. Many obstacles to using hot melts more efficiently and successfully have been encountered and overcome in recent years, but large areas are still unexplored. New problems continually need solving. We hope that the foregoing factors serve as guides on the road to improved packaging. *(End)*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# How to run boilable-bag packaging

**By Tony W. Downs**
*Chairman of the Board*
*Tony Downs Food Company*
*St. James, Minnesota*

**Boilable bag packaging places many demands on the packaging operation and on the packaging material. To achieve good seals—a critical point—you must control filler drip, select the proper filling spout, keep product out of the sealing area, and determine correct sealing temperature/pressure/dwell-time. The packaging material must withstand boiling for four hours, sealing at high temperatures, and freezing at –40°F.—and it must not shrink.**

What influences the effective and efficient packaging of "boil-in-the-bag" food entrees? For us, these influences start with a combination of hand and mechanized operations. Our success, however, rests on a three-step guide to better packaging:

1. Plan your packaging line carefully before going into production.
2. Pay close attention to technical details in defining requirements for materials.
3. Make thorough and exacting tests of the completed package before going into full production.

"Boil-in-the-bag," as applied to this type of packaging, is actually a misnomer. "Heat-in-the-package" is a more accurate description since an oven may be used as well as boiling water in preparing these precooked, packaged food items.

At present, the items we package include a sliced chicken or turkey and gravy combination, other meat and sauce combinations, and macaroni and cheese entrees.

### Line Operation

Our packaging line combines hand labor with packaging machines to maintain a production rate of 60 packages/min. We have to use hand labor to place the solid food products into the plastic bags, but other phases of production lend themselves to effective use of semiautomatic machinery.

We cook our sauce and meat products in our adjoining kitchens, and the liquid portions go into stainless-steel vats for cooling and storing. The meat portions (say, chicken and meat loaf) are sliced in another room, placed on trays, and attendants carry them to the line for insertion into the bags.

We pump our sauces and gravies which go with the meat products through stainless-steel pipes from the 3,000-lb. capacity cooling vats to the hopper of our standard foot-operated Elgin filler. The hopper of the filler is kept nearly full throughout a packaging run by a float valve which maintains a constant level in the hopper.

### Filler Drip Controlled

Only the portions of our heat-in-the-package products which we handle as liquids (gravies, sauces, and the macaroni and cheese) flow through the filler. Depending on the product, 3 to 4 oz. of gravy or 8 oz. of a complete entree, such as the macaroni and cheese, are put into the bags.

Proper attention to filler maintenance and spout selection solves the problem of drip from the spout after the filling stroke of the piston completes its cycle. We find, also, that controlling the drip at the filling head helps prevent loss due to poor heat seals on the plastic bags.

To maintain a production speed of 60 bags/min., we use a Minnesota Mining automatic bag opener. This saves time since a girl cannot pick up, open, and fill plastic bags at the rate of 60/min. without this mechanical assistance.

The packaging line operation continues like this: After filling the bags, the girl at the filler puts them on a powered belt conveyor. Two continuous Neoprene belts, which are vertically mounted and move horizontally on either side of the conveyor belt, hold the bags in an upright position. The bags filled with gravy move along the conveyor to the next station where meat products are manually added. Bags containing complete entrees such as macaroni and cheese bypass this station and go directly to the sealer.

### Manually Fill Solids

When we fill packages with chicken slices and other solid products, four to six girls weigh individual portions and insert them into the bags by hand as the bags move along the conveyor belt. The number of operators working on the line depends on the desired line speed and the product. For example, four girls put meat loaf slices in the bags, but six girls are needed to put sliced chicken in the bags at a line speed of 60 bags/min. *(Turn page)*

**BAGS ARE FILLED WITH GRAVY,** then conveyed to weighing stations for portion control. There operator weighs solid food (such as chicken slices above) and inserts it into bag.

**FILLED BAGS** move along conveyor to automatic sealer which seals them at 350°F. Operator prepares tops of bags—being sure no product is in seal area—to enter machine properly.

**VISUAL INSPECTION** for leaks and distorted seals takes place as bags discharge from sealer conveyor. Two girls then place bags on open-mesh trays ready for freezing.

Portion control, say, 5 oz. of meat loaf, is obtained on over-and-under scales for ease and speed of handling. The girls wear plastic gloves and place a portion of meat into each bag after weighing the portion.

### Sealing Preparation

The filled bags move along the conveyor belt to a Pack-Rite sealer. As they approach the sealer, the girl at the sealer straightens out the bags to position them properly for sealing. If a slice of chicken or other solid product is sticking up into the sealing area near the top of the bag, she pokes it deeper into the bag with a plastic-gloved finger.

Also, she carefully squeezes the bag together with her fingers to remove as much air as possible, to keep head-space at a minimum, and to keep gravy from splashing into the seal area of the bag.

Air is not desirable in a packaged meat product since it may cause the meat or gravy to spoil. Thus, we must not only keep air out at the start, but must prevent its subsequent entry into the bag by maintaining good seals.

In addition to temperature, pressure, and dwell-time considerations, it is vital to keep the product being packaged clear of the sealing area. If gravy or some other foreign substance gets into the seal area, the film will not heat seal. Through careful handling of fairly viscous liquids and solid products, we are able to eliminate splashing gravy, for example, into the sealing area and we can obtain good seals.

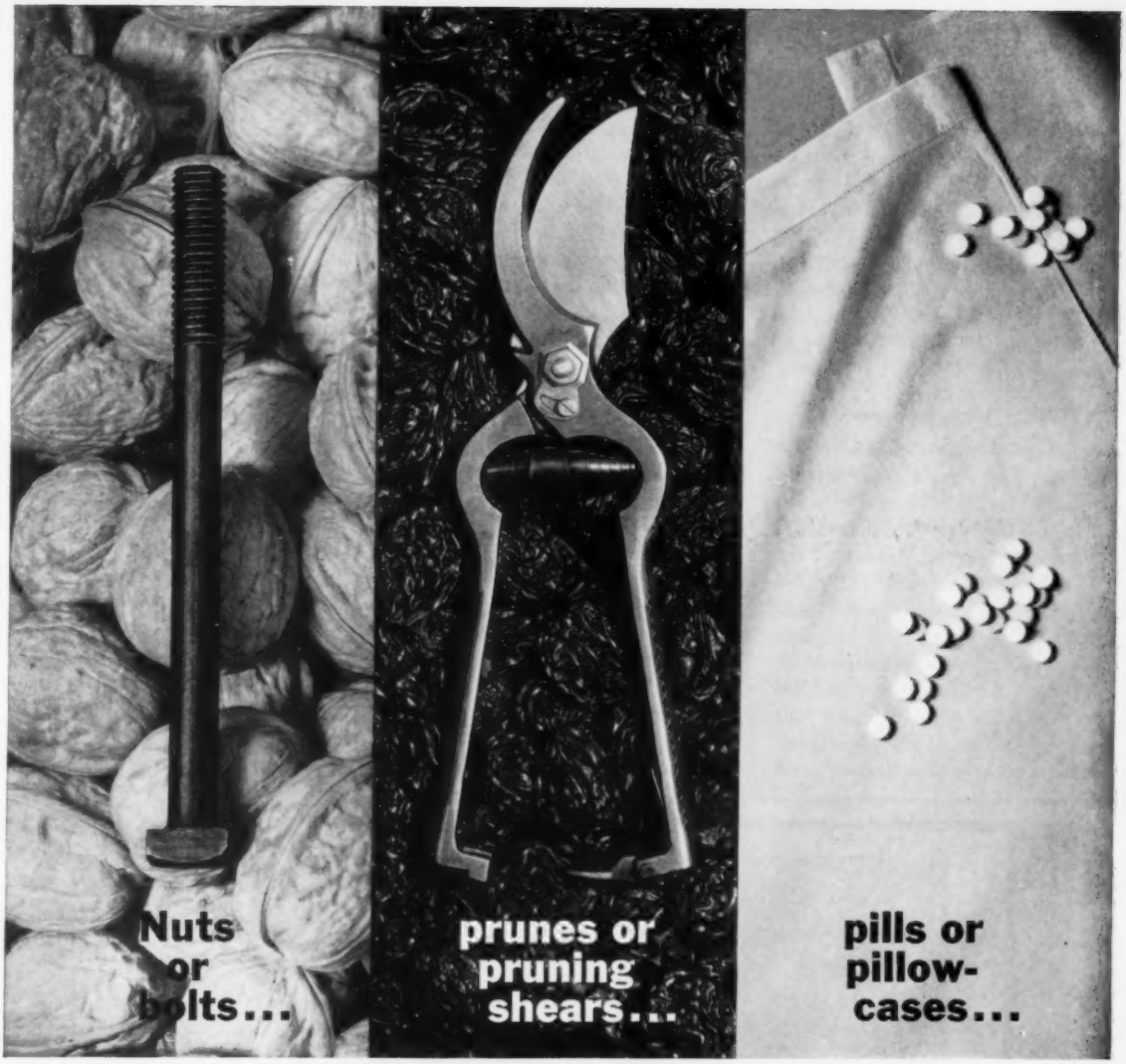
We heat seal our bags at 250°F. at a normal speed of 60 bags/min. Faster operating speeds require higher temperatures to insure getting a good, air-tight seal. This is because faster line operation leaves less dwell-time in the sealing unit because the length of the heat seal bands does not change. We seal at constant pressure, varying only the temperature in relation to speed.

### Narrow Seals Best

We find that the narrower the seal area, the less apt we are to be plagued with seal distortion problems. The plastic material melts during the sealing process so that under pressure the two surfaces fuse and form a bond upon cooling. When this melted area cools, it tends to contract, and the contraction, in turn, causes distortion of the finished package.

We find that wide seals (a 1-in. wide seal, for example) will distort the package noticeably upon cooling. A narrower seal, say ¼ in., does not distort the bags as much as a wider seal. The degree of distortion appears to be a direct result of the area of the seal—the greater the area, the greater the distortion. *(Turn page)*

**Tony W. Downs** started Tony Downs Foods Company in 1947. Previously he was with Boote Hatchery and Packing Company for 14 years, the last 7 of which he served as manager. He is national director of National Poultry, Butter and Egg Association (and past Minnesota director), and a member of Institute of Food Technologists, and American Meat and Poultry Institutes.

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After the bags have been sealed, they continue on to the end of the conveyor. Here they are picked up by two operators who visually inspect the bags for leaks and distorted seals. Next, they put the bags on open-mesh steel trays which, in turn, are put onto racks with wheels. When the racks are filled, they are moved to our quick-freezing area (–40°F.) where the cooked and packaged products are frozen before being packed into shipping cases.

### What We've Learned

Through trying different materials and package structures (laminations) for our boil-in-the-bag packages, we have learned many things.

We found that some laminated materials (a polyethylene-aluminum foil bag) tend to delaminate upon prolonged application of heat, for example, boiling a filled bag in a pot of water at 212°F. for an hour or more. With a laminated package, most of our trouble came from separation of the side seals on the bags. As a result, we insist that all packaging materials must be able to withstand boiling for four hours, in filled bag form, without seal separation before we consider the materials for our packaging use. A single thickness of film, such as the Scotchpak-brand polyester film we are now using, eliminated this delamination problem.

A film that is dimensionally stable is a must for this type of packaging. If the film shrinks at very high or very low temperatures it would, in a filled bag, squeeze the product and probably burst at the seams.

Sealing temperature is important to obtaining good seals. We found that we could seal a polyethylene-coated 0.001-in. aluminum foil bag at 350°F. at a rate of 60 bags/min. and also a polyester bag at 250°F. at 60 bags/min., both on a Pack-Rite sealer. Lower temperatures did not seal the bags properly and higher temperatures, at the same line speed, tended to distort the plastic materials.

We presently are using the polyester bags because they do not delaminate. We do not use the foil-polyethylene combination—even though it can be sealed successfully—because the two components of the bag come apart under prolonged heat application—as when boiled in a pot of water.

### Speed-Temperature Relationship

For the materials tested, we found a direct speed-temperature relationship: the faster the line speed, the higher the sealing temperature necessary to obtain good seals. Since some films cannot withstand high temperatures, we needed a film that could to maintain production speeds.

We want a film that does not have a critical sealing range. Since small fluctuations in line speed could affect the quality of the seals on a critical-range film, we need a film that has a comparatively broad sealing range so that we do

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not have to be too concerned with precise temperature control. We realize that temperature is a key factor in getting good seals, but a broad sealing range in a film helps make our job easier.

For this type of packaging, we need a film that can withstand a broad range of temperatures. We freeze the package at -40°F., boil it at 212°F., and seal it at 250°F. We have to have a film that will hold up—one that is not brittle in extreme cold and one that does not lose its strength under prolonged heating.

In addition to the above requirements, we want a film that has good clarity, is highly resistant to oxygen permeability, and is printable.

### Material Selection Criteria

The necessity of the foregoing bag material characteristics became quite clear to us after a trial-and-error approach to the selection of a material. This was an expensive and heart-breaking experience. For example, we lost $18,000 on one bag which burst at the seams. In another instance, we had to return several hundred thousand bags to a supplier because of leaking and delamination of the side seals.

### Getting Good Seals

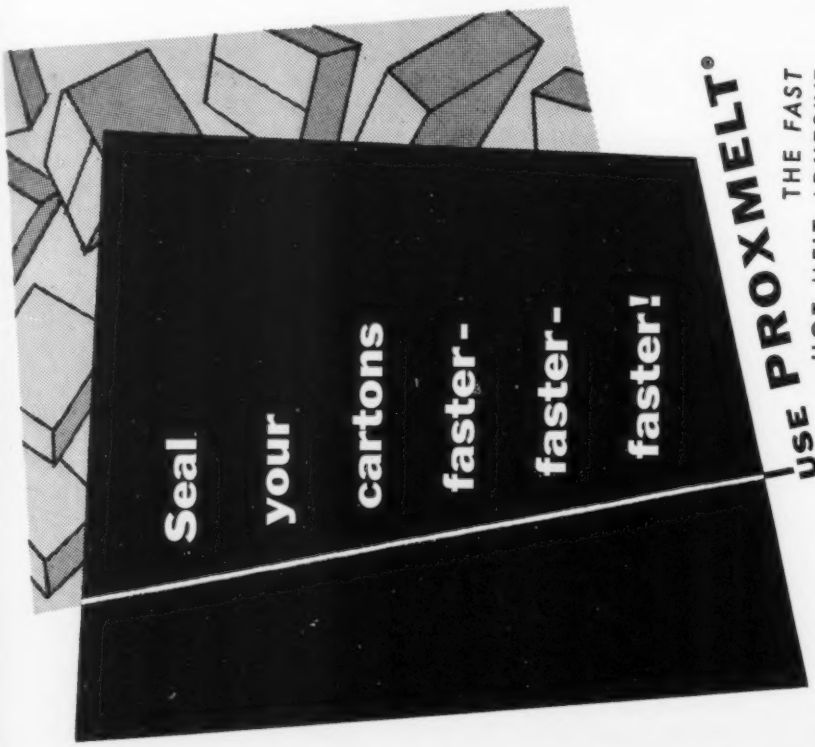
Determining what causes poor seals and how to prevent them consumes a lot of our time. How to prevent poor heat seals in an operation similar to ours deserves attention.

First, maintain positive control over drip from the filling heads of your equipment. Selection of the proper size and type of filling spout, in relation to product density and viscosity, is important to eliminate drip of the product out of the filler nozzle between filling strokes of the piston.

Also, you must control splash and product intrusion into the seal area. Careful handling of the filled package by the people working on the line is often the answer to this type of problem. Proper supervision by line foremen can be helpful in training personnel to handle a package carefully.

Finally, you must determine the correct temperature, pressure, and dwell-time combination for the film and operating factors under which you work. These three factors are largely determined by the film you are handling and the machinery you are using. Often, the correct combination has to be determined by experimenting right on the line. In general, we find that temperature and dwell-time are determined by line speed. Sealing pressure has to be worked out to suit the demands of these three factors and in light of the film characteristics.

Obtaining good seals on your packages with your packaging equipment is the basis of success. Assuming you accomplish a good seal on a good package, we believe that any food that can be cooked can be put into a "boilable" plastic bag. *(End)*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**One night after a Packaging Institute production line committee meeting, we got Mr. Auerswald and Mr. Glynn off in a corner and plied them with questions about their trip to Europe. Their answers added up to a discerning view of technical and operational packaging in Europe today, so we asked them for this article. Their comments show what one can learn on even a short visit in Europe.**

# European sojourn turns up fresh thinking about packaging

**By W. H. Auerswald,** *President*
*Tubed Chemicals Corporation, Easthampton, Massachusetts*
**and Thomas M. Glynn,** *Vice President of Manufacturing*
*John H. Breck Inc., Springfield, Massachusetts*

In reporting on a trip as short as ours, we can only give impressions. Our main purpose was to visit the 1960 Interpack Fair in Dusseldorf, Germany, with side trips to Denmark, Sweden, England, and France. This took just twelve days. This was long enough to become very enthusiastic about Europe as a source of equipment, materials, and ideas, and as a fascinating and inviting market for American products.

Commercially, the two most important influences in Europe since the war have been the Marshall Plan and the European Common Market. The visiting American business man must recognize this as a background to understanding an environment different than the one he is accustomed to. He must also be sensitive to the historical and cultural differences between the United States and the countries of Europe. However, in most cases, while able to conduct business using only English, his pride will be hurt when he compares his linguistic abilities with those of Europeans.

Despite all the differences, it is remarkable how relatively easy it is to initiate and retain commercial relations. Obviously there has been a close relationship and exchange of ideas between American and European packaging firms in the past, and the benefits to both parties appear to be welcome. No trade or national practices appear to present any hindrances. Businessmen certainly seem to speak the same language everywhere.

After touring the vast Interpack Fair and making an effort to assimilate and integrate what we had seen and heard, we agreed upon one thing: The most important factor is to thoroughly know and always remember what your own requirements are. Then you are in a good position to evaluate new machinery, materials, and ideas. A visit to a foreign fair offers a splendid watershed of new thinking.

## Layout Of Lines

**Does the general layout of European packaging lines suggest that the plants you visited are as hard-pressed for space as comparable American factories? Do the Europeans show the ingenuity of installation and layout that is so common here in the United States?**

European packaging plants are at least as hard-pressed for space as we are here. They show at least as much ingenuity in installation and layout as we show. Our first impression is that they show more ingenuity.

**Did you see any evidence of plant operations (especially packaging lines) being much more crowded? Are any lines close-coupled? Is it a common practice to have long backlog conveyors?**

Our own lines in this country vary so much between different plants that this is hard to answer. Generally, their plants are a little more crowded and lines are close-coupled. Most of their lines are running at lower speeds than most of ours here.

Their volume has been generally lower, and their labor cost is considerably lower so that they can "live" more with semiautomatic operations. Now with the Common Market in operation, they are gearing up for longer runs.

Also, their labor costs are moving up due to the general prosperity in Europe. Incidentally,

fringe benefits are a big item in Europe. In France, fringes average 60 per cent of wages. Also, government plays a more important role in labor-management relations than it does in the United States.

### Positioning Equipment

**Do the Europeans show any original thinking in the positioning of equipment that would indicate radical departures in line layout from what we normally see here?**

We did not see any radical departures in the plants we were able to visit. We did see some unusually good timing between operators running semiautomatic machinery where the operations were practically synchronized by the operators working in rhythm with one another.

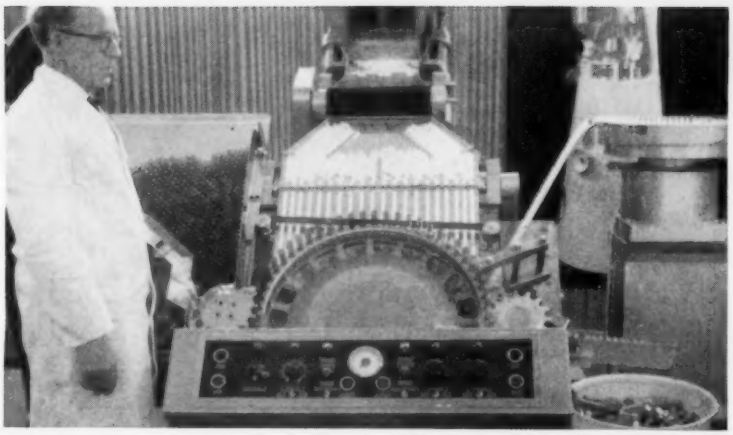
For example, a boy was filling powder into open-end polyethylene tubes at possibly 28 units/min. and passing them to another boy, who was feeding them into a sealing machine operating at the same speed. Their rhythm was so good that they did not miss a single station during the ten minutes or so we watched them. In our opinion, except for language, legal and contact barriers, an American packaging man would feel very much at home in Europe.

### Feeding Containers

**What did you see in the way of equipment or techniques to feed empty containers to packaging lines that represent departures or improvements on the normal unscrambling and line feeding arrangements in our country?**

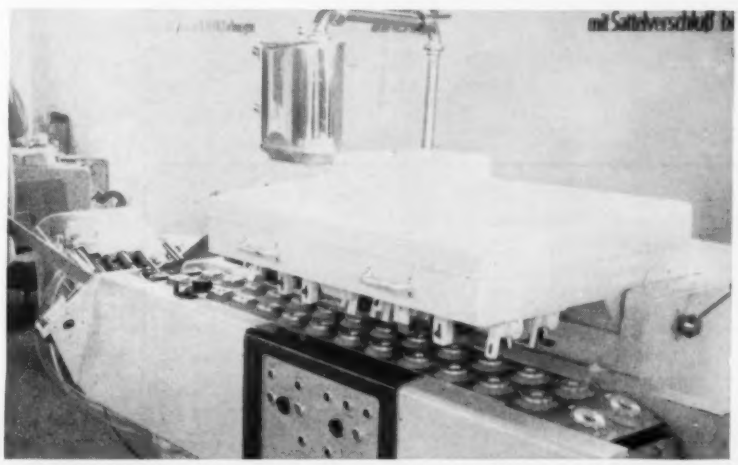
A machine manufactured by Druk-Pak is highly promising in filling and capping plastic tubes and bottles through the top in one operation. At the packaging show in Dusseldorf, we saw a very interesting metal-tube filler enclosure that operated on a straight-line setup. It was completely automatic and seemed to work well in placing tubes into tube holders automatically, positioning them by a normal photoelectric cell setup.

*(Turn page)*



**GLASS VIALS** are "bottoms up" as they go through this machine. Moving through turret arrangement, tablets or capsules get pushed in from below. Machine puts plastic stoppers in from same position. Short movement distance (one tablet thickness) seemed to minimize breakage.

**MANY TUBED ITEMS** are less viscous than tubed products in U.S., so Europeans can "live" with less heavy-duty machinery. This machine is filling plastic tubes in plant near Verdun, France, and unlike many similar installations in Europe, is not using gas-flame sealing method.



**THIS STRAIGHT-LINE** tube filler seemed to suggest European machinery development trends. Taking tubes from box at left, "fingers" grab two tubes, insert them in cups after which the tube box moves automatically. Dusseldorf exhibitors said this was first machine of its type.

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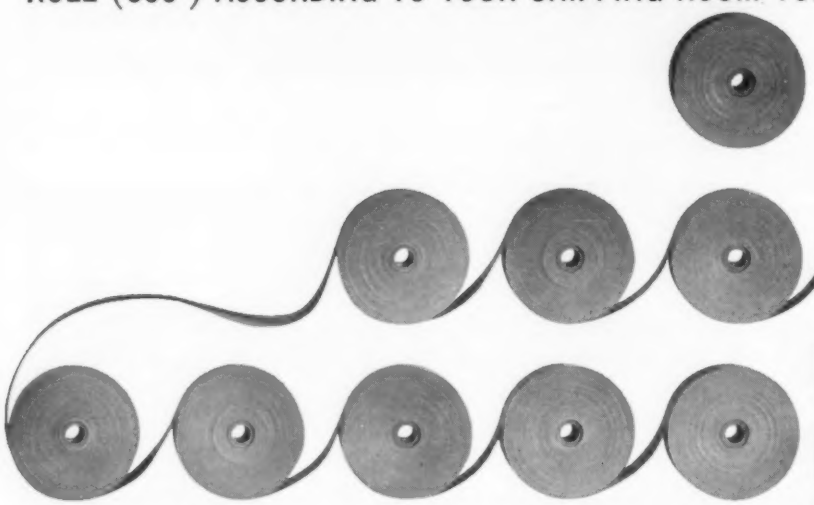

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Probably the most interesting application which would appear to be original thinking was a machine to fill tablets into glass vials. The vials were automatically fed through a turret arrangement in an inverted position, and the tablets were pushed in from the bottom. While still in the inverted position, the vials were closed automatically with a plastic closure. The machine operates at high speed. One operator could handle a battery of these machines.

### More Automatic Lines

**Do the Europeans impress you as moving towards completely automatic line operation? Are fillers, cappers, cartoners, and related units as mechanized or as automatically controlled as we have them here?**

Yes, the Europeans are moving rapidly toward completely automatic operation. However, they have to balance this with capital investment figures. There appear to be many more fully integrated packaging machine manufacturers in Europe who will manufacture complete lines that are fully synchronized and more compact than our present equipment.

It is our impression that we have more to learn from the Europeans than we can teach them in the way of equipment, with the possible exception of high-speed bottle and jar filling.

### Speed Ranges

**Tell us the speed ranges you found over there; try to compare them to what we have here. Did your observations lead you to any conclusions about European speeds?**

Moderate speed cartoning seems to have progressed further than in this country. Many companies offered fully automatic machines (complete with leaflet mechanisms) in the 40 to 80 cartons/min. speed range. Further, we noted that many machines for screen printing were available—apparently because plastic containers are so widely used.

We saw no filling machines operating at speeds above 300/min. Most of the machines operate at 120/min. or less in the filling field. Tableting equipment, candy making equipment, etc., operate with at least as high speeds as our equipment. Many of the machines, however, are made so that one operator services more than one.

Tetra Pak's machine, made in Sweden, probably produces the cheapest packaging in the world in a continuous operation. The machine is in operation throughout the world, and the firm is so active in the international packaging picture that they have several hundred employees in areas such as Pakistan, South Africa, Egypt, Australia, and other countries in which few of our packaging firms even consider a market.

### Running New Materials

**How are they doing with machinery for running the newer materials (say, polypropylene) at high speeds? Can they do that as fast as we run cellophane here? What about some of the other materials, e.g., polyethylene?**

Polypropylene does not seem an important factor in Europe at the moment. Their pouch machines for running cellophane and cellophane-polyethylene combinations are every bit as good as ours. In fact, generally they struck us as being superior.

But it does appear that we are further advanced in polyethylene in this country although the Europeans have done more in the vinyl field. Their vinyls are excellent and are used in large quantities throughout the packaging industry. In England, flexible packaging uses Pliofilm more widely than polyethylene. We understand the quality of available polyethylene has a bearing on this.

**Assuming they have a normally operating line, how do they do on downtime? What percentage of rated capacity do they reach?**

We got the impression that since most of the plants are operating at lower speeds, they are getting at least 90 per cent of rated capacity for any production period. Just as in our country, when downtime and "reject" figures are quoted, they should be discounted. While we had no way to verify figures, we did sense an awareness of the necessity for control data.

### Machine Accuracy

**What sort of accuracy do they get with liquid fillers? How do they do on vacuum fillers? Positive displacement fillers? Gravity fillers? How fast do they run?**

On piston filling equipment, their accuracy is at least as good as ours. Accuracy is hard to express in percentages—1 per cent on a 4-cc. package is excellent, while 1 per cent on a quart package is poor for most piston type operations.

Vacuum fillers should certainly be as efficient; the accuracy has

**W. Howard Auerswald** is a graduate of Massachusetts Institute of Technology. He is president of Tubed Chemicals Corporation and is a member of the National Defense Executive Reserve for the containers and packaging division. Also, Mr. Auerswald is a trustee of the Packaging Foundation of Michigan State University, and is a member of the Society of Cosmetic Chemists.

**Thomas M. Glynn** is a graduate of American International College with a B.S. degree. Joining John H. Breck, Inc. in 1943, he has served in cost accounting, purchasing, production control, production, and as plant manager previous to his present position. Mr. Glynn is a member of Packaging Institute, American Management Association, and Institute of Management Sciences.

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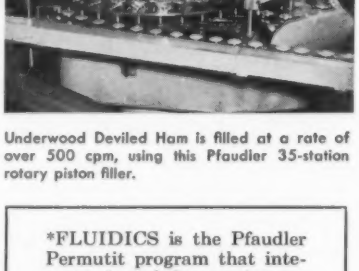

Underwood Deviled Ham is filled at a rate of over 500 cpm, using this Pfaudler 35-station rotary piston filler.

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more to do with the container than with the filler itself—with the exception of dripping. The Europeans seem to be as advanced as we are in solving this problem.

The only information we have on gravity fillers has to do with Tetra Pak's machine, which seals underneath the fluid level and probably does come as close to being accurate as any liquid filling machine in the world.

### Compact Machinery

**What are they doing to make their machines more compact and still run at high speed?**

There is a definite trend to compact machines. This may possibly be due to the fact that the average container size appears to be slightly smaller than it is here.

The Europeans are evidently more used to shopping on a day-to-day basis. They still do not have large refrigerators in most homes, nor has the supermarket habit caught on—where people shop once or twice a week and buy large containers to last through the week.

This means that packaging machines are more compact since they are generally filling smaller containers. There is also a trend toward making compact machines: One manufacturer usually supplies an entire line, and this line may well have only one conveyor belt (perhaps 20 ft. long) on which the containers are filled, cleaned, capped, and labeled.

### Common Drives, Gadgeteering

**Did the people you visited express any opinions on individually powered machinery versus a common drive for all machines on a line?**

Most machinery manufacturers seem to lean toward a common power drive for all machines on the line when they have fully automatic lines.

**Do you see very much machinery modification—particularly, practical gadgeteering?**

There is great evidence of "Rube Goldberg" gadgeteering of a most ingenious type. *(Turn page)*

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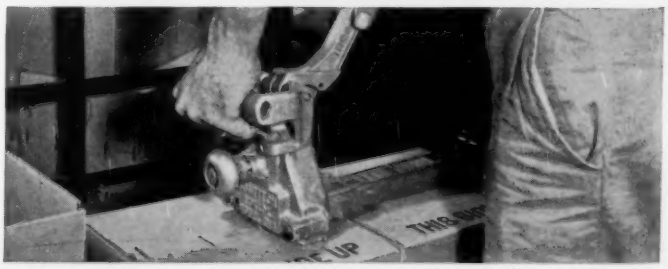
(Below) To seal the tops of corrugated cartons loaded with five gallons of shoe leather dressing, a Bostitch Boxlok Stapler is used. One man can top-seal ten cartons a minute as the loaded boxes arrive at this station by handtruck.



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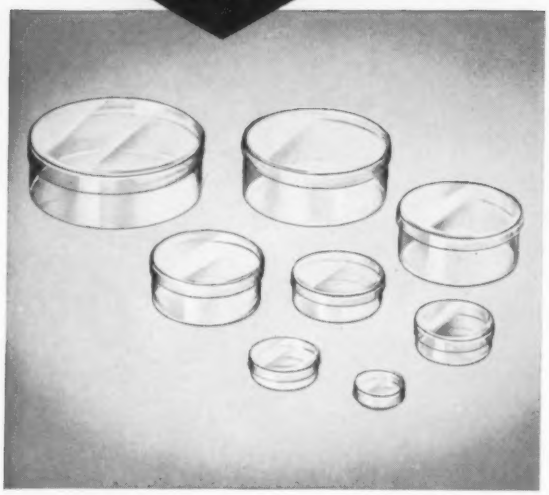

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### Manual Methods

**How ingenious are they in short cuts and gadgets, not for machines, but devices to facilitate manual packaging? How do they make the transition from purely manual to partially mechanized packaging?**

They are most ingenious in this field. This is one of the benefits of a trip to Europe: You see fresh approaches to so many problems. Many times the solutions are no better than our own, but the fact that they are different stimulates your thinking and may give you an idea to use productively over here.

**How are the Europeans solving the changeover problem of using different sizes of containers within a range—all geared at speeding up changeover? How about the flexibility of their machinery and lines?**

The machines are generally rather flexible since they run at slower speeds and most plants package a wide variety of sizes. Speed and changeover do not seem much of a factor as everyone appears to be working at a faster pace than we do over here.

**Do variations in the quality of containers and of packaging materials plague their high-speed operations?**

Quality of the container is high, considering their packaging conditions and machines. However, quality on certain items will certainly have to improve as the Europeans get into higher speed operation.

### Many One-Story Plants

**Do they show any interest in three-dimensional lines—for example, having the packaging supply on one floor, feeding up or down to the packaging operation on another floor? Do they show a trend one way or another toward multi-story or single-story packaging line operations?**

We saw more one-floor operations than multi-story ones. In general, new construction is considerably cheaper than here, and it would appear that more and more factories will be one-floor operations.

In Slough, Bath, England, there is a short section of two-lane superhighway with several new one-story plants on each side. Approaching this section, one finds it difficult to believe he is not in the United States.

### In-Line Innovations

**Did you see any in-line equipment for making, filling, and closing containers next to the point of fill?**

We did not see any equipment for making, filling, and closing rigid aluminum cans. However, there was equipment for making and filling different plastic containers. There are great developments in this field that will receive much attention in the next two or three years.

**What impressed you as radical or new in machinery to handle plastic films? Are they now able to package things they did not previously package for lack of proper machinery?**

The most interesting machine we saw handled plastic tubes, particularly very thin-wall vinyl tubes. Many of these tubes have the opening in one corner for ease of emptying. Tubes can be stored completely flat with a cap on. The cap is a two-piece affair with a plug. The tube is emptied of air, filled, and plugged through the two-piece cap at a rate in excess of 30/min.

### Scheduling Problems

**How good a job do they do with packaging line scheduling? Do they strive for high-volume long-production runs? Do they show any unusual ingenuity in the balancing of line operations and the scheduling of runs from size to size or product to product?**

From what we could tell, there are more low-volume short-production runs even in the large plants. This is sometimes caused by differences in marketing procedure; for example, shampoo in some European countries is sold in six or seven different colors with seven or eight fragrances available.

This means more short runs and changeovers even though the total shampoo usage in many of the European countries is quite high per capita. The same is generally true in the collapsible tube field even though the usage per capita in some countries is more than five times ours. As the Common Market becomes more integrated within the next five years, high-speed equipment will be used for longer and longer runs.

### Exporting Machinery

**How are markets in the United States and Canada, the Far East, and other parts of the world affecting development of packaging machinery in Europe? Is new equipment being designed for export to, say, Africa?**

Many European manufacturers of machinery are selling to the entire world at this moment. There are others with excellent equipment who have been selling in one or two countries.

They are going through the same


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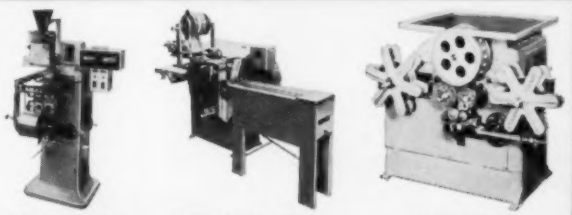

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transition that we are here. They realize that the world market is the real prize, and most of the firms that are not already in it are gearing up to enter the race. Each firm seems to have a little different approach.

We ran across several German firms that plan to build plants in Ireland, others are building in the British Commonwealth countries, and others are licensing firms in the Outer Seven or Inner Six, plus in our hemisphere.

### Challenges From Abroad

**How does American machinery affect the design of European equipment? Do the needs of American manufacturers affect the design of European equipment for export to the United States? Did you find American manufacturers contacting European machinery builders for specially designed equipment for use in the United States?**

The Europeans are interested in our particular requirements and are gearing up now to take care of any electrical requirements that we might have here.

They are not about to change from the metric system, and we are in a very small minority on this point. It appears that we must think more and more in terms of the metric system during the coming years.

American manufacturers (i.e., package users) are definitely contacting European machinery builders for special machines. More and more of our manufacturers are setting up foreign subsidiaries and are using foreign equipment in these plants. If the equipment works well there, they will have much more reason to consider using it here.

Our own machinery manufacturers must remain alert to gain their share of this new and growing market. We think it behooves all of them to go out of their way to continue serving their present customers by offering to send servicemen to foreign plants to install American-built machinery.

At the same time, American manufacturers should consider the expense of these service calls and make sure that they are not pricing themselves out of the market with unrealistic per hour charges and travel expenses. Traveling in foreign countries is frequently much less expensive than in our own country.

### New Markets Opening

**Are packaging line operations still geared largely to national markets or do you find the European Common Market injecting a note of standardization to packaging line operations and facilities?**

At the moment packaging line operations are still geared largely to national markets, but this is starting to change. Many containers now carry more than one language, and many manufacturers are starting to work together. There are also more and more companies servicing the entire Common Market, and this will inject a note of standardization. *(End)*

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# Optimum package dimensions save board

## Part I—How to (1) find the optimum dimensions to minimize board needed to enclose a given volume; and (2) integrate minimum board area factors with other package requirements.

**by George G. Maltenfort**
*Technical Director*
*Container Division Laboratory*
*Container Corporation of America, Chicago*

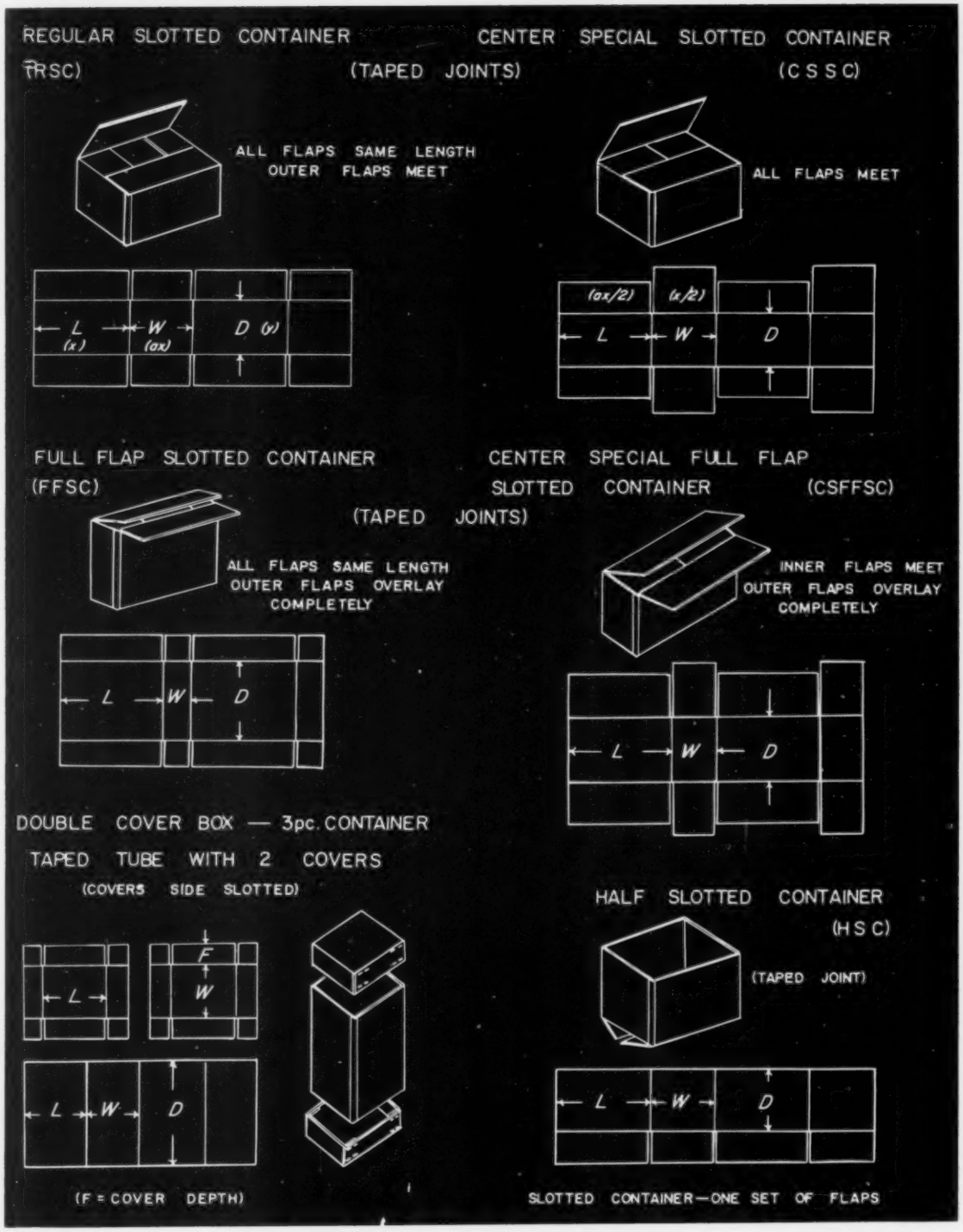
Every package has a combination of dimensions which minimizes the amount of material required to enclose a specified volume. Some thought has been given to the problem of finding this optimum set of package dimensions *(1, 4, 5, 7, 8, 9, 10)* but with unsatisfactory results.

However, optimizing package dimensions to minimize materials requirements is only one aspect of the design problem. For example, the optimum combination of package dimensions may not necessarily be best to: (a) enable a package to survive rough handling; (b) lend itself to palletizing or going through automatic filling equipment; (c) store and/or stack properly; and (d) look attractive to make the consumer want to buy the package or be compatible with the marketing needs of the package.

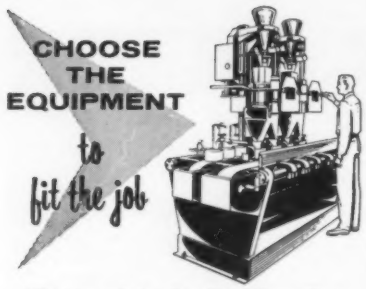
Thus, in the over-all package design, the designer must also integrate optimum production and materials handling economies as well as performance and merchandising demands made upon the package.

The variety of package styles and

**For every package there is a combination of dimensions that minimizes the material required to enclose the specified volume. In Part I, Mr. Maltenfort presents a general method for solving the problem of finding this optimum set of dimensions and gives examples of minimum board area formulae for common corrugated boxes and cartons. He also shows how to integrate minimum board area considersations with other package requirements such as container performance and appearance. In Part II, Mr. Maltenfort cites a technique for deciding between styles or designs and shows the effects of interchanging dimensions or adding a stitch flap to board area requirements.**




**1 CORRUGATED FIBREBOARD BOX STYLES.** The RSC has all flaps the same length; outer flaps meet at center of box while inner flaps do not. Space between inner flaps varies, depending on relation of *L* to *W*. The FFSC also has all flaps the same length, but the outer flaps overlap completely. Two thicknesses of board cover entire top and bottom areas with three thicknesses at inner flaps. The CSFFSC is the same as the FFSC except the inner flaps meet, giving three thicknesses of fibreboard over the entire top and bottom areas. The three-piece double cover box is a tube with two telescoping covers of specified length. The HSC with only one set of equal flaps combines slotted and telescope styles.

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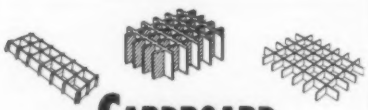

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**George G. Maltenfort** is a graduate of University of Illinois with a B.S. degree in organic chemistry. He is now technical director of the container division laboratory of Container Corporation of America. Mr. Maltenfort is a member of Technical Association of the Pulp and Paper Industry, American Statistical Association, American Chemical Society and American Society for Quality Control.

designs makes it impractical to compile a catalogue of formulae for calculating dimensions to minimize materials requirements for all of them. Thus, the designer should have a general method or technique for solving each particular problem. What the package designer really needs are:

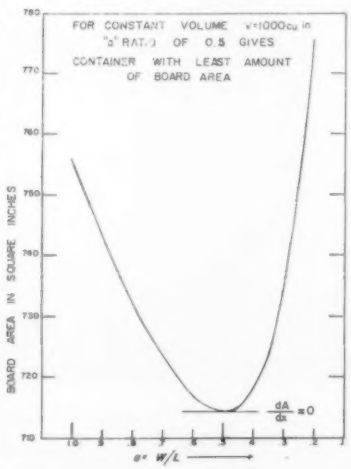
1. A general technique for solving problems of this kind.
2. An understanding of the relationship between design and production realities.
3. Knowledge of the performance and merchandising demands made on the package.

The purpose of this article, therefore, is threefold:

1. To offer a general method for determining optimum packaging materials to achieve a desired cubic content, and to present examples of minimum board area formulae for common corrugated box and carton styles and a can.

2. To point out how to integrate minimum board area considerations with other package requirements.

3. To illustrate a technique for deciding between one box style or design and another.




**2** **BOARD AREA** versus "a" ratio for container of constant volume (V = 1000 cu. in.). Most favorable "a" ratio is 0.5, giving container with least amount of board area.

## GENERAL METHODS

Almost all packages are regular geometrical solids. Therefore, we can express the area of material necessary to enclose a given volume in terms of a mathematical function or equation of the dimensions. To find the combination of dimensions which makes the area for a given cubage the minimum, you differentiate the function, set the derivative equal to zero, and solve for one dimension. You then use simple algebra to derive the other two dimensions. This method of finding maxima and minima is the first practical application for derivatives generally presented in elementary differential calculus *(3)*.

### Optimum Package Dimensions

To illustrate, using a regular slotted container (RSC), let $L$ = length, $W$ = width, and $D$ = depth, the box dimensions in inches; and $V$ = volume in cubic inches. Further, let $L = x$, $W = ax$ (where $a = W/L$, the $a$ ratio), and $D = y$. Since $V = L \times W \times D$, then

$$V = ax^2y \qquad (1)$$

and

$$y = \frac{V}{ax^2} \qquad (2)$$

The area, $A$, of the RSC blank illustrated in Fig. 1 is

*(Turn page)*

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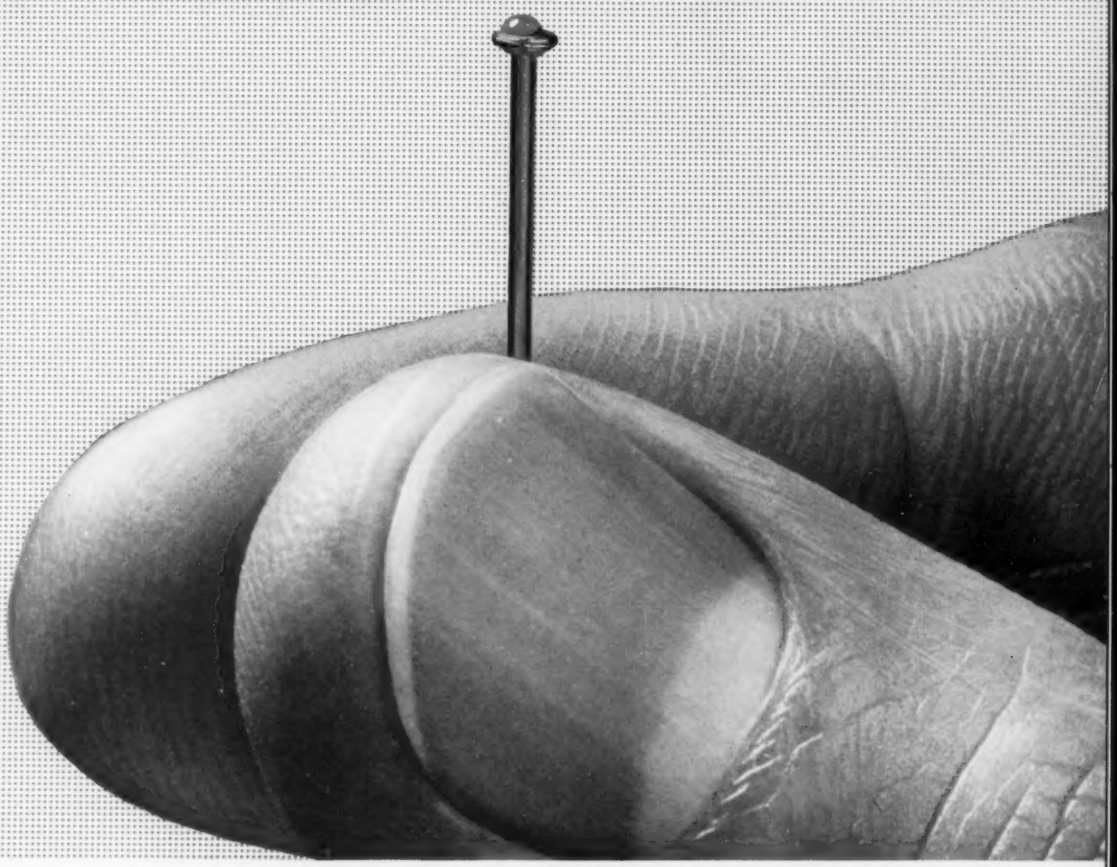

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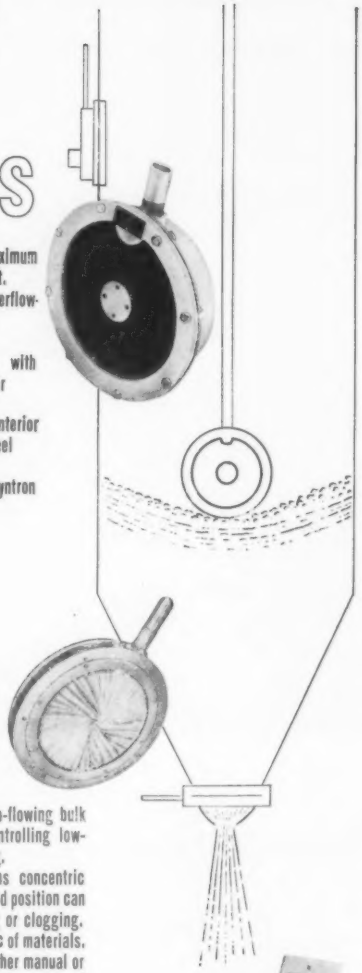

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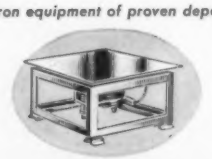

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Vibrating Screens

$$A = \frac{4\sigma x^2}{2} + \frac{4\sigma^2 x^2}{2} + 2xy + 2\sigma xy$$

(area of tops) + (area of body)

Simplifying and substituting for $y$ (from Equation 2) we get

$$A = 2\sigma x^2(1+\sigma) + \frac{2xV}{\sigma x^2} + \frac{2\sigma xV}{\sigma x^2}$$

$$= 2\sigma x^2(1+\sigma) + \frac{2V(1+\sigma)}{\sigma x}$$

Differentiating the function and setting it equal to zero, we get:

$$\frac{dA}{dx} = 4\sigma x(1+\sigma) - \frac{2V(1+\sigma)}{\sigma x^2} = 0 \qquad (3)$$

*Solve for L.* Since $L$ is equal to $x$, we solve for $x$ in Equation 3 as follows:

$$4\sigma x(1+\sigma) = \frac{2V(1+\sigma)}{\sigma x^2}$$

$$4\sigma^2 x^3 = 2V$$

$$x^3 = \frac{V}{2\sigma^2} \qquad (4)$$

$$x = \sqrt[3]{\frac{V}{2\sigma^2}} = L \qquad (5)$$

From Fig. 2 we see that when no other considerations restrict choice, the most favorable $a$ ratio is 0.5. Substituting 0.5 for $a$ in Equation 5, we reduce the formula to

$$L = \sqrt[3]{2V} \qquad (6)$$

*Solve for D.* Since $D=y$, we solve for $y$ by substituting $ax^2y$ for $V$ in Equation 4:

$$x^3 = \frac{\sigma x^2 y}{2\sigma^2} = \frac{x^2 y}{2\sigma}$$

hence,

$$y = \frac{2\sigma x^3}{x^2} = 2\sigma x \qquad (7)$$

From this we see that when $a = 0.5$, $y = x$.

*Calculate W.* For any $a$ ratio, we can calculate the width from $W = aL$, and we can obtain $D$ from $D = V/LW$ if we have no simpler relationship for $D$ which is easier to calculate. *(Turn page)*

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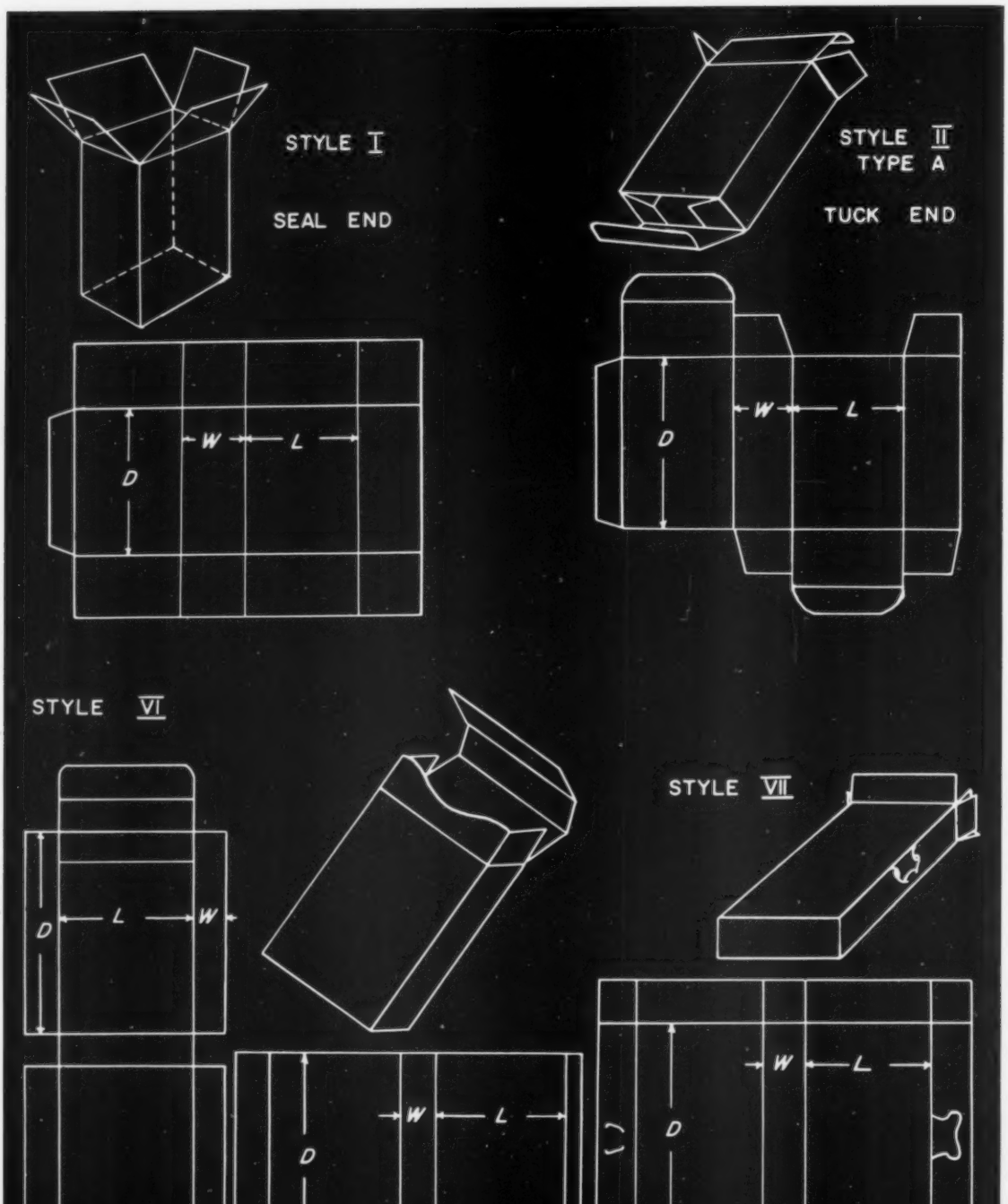



**3 COMMON FOLDING CARTON STYLES** per Federal Specification PPP-B-566a, dated August 31, 1960. Modifications and combinations of these designs make style possibilities practically limitless.

## Minimum Board Area Formulae

Table I lists some minimum board area formulae for the corrugated shipping container styles illustrated in Fig. 1. Table II does the same for some carton styles from Federal Specification PPP-B-566a for folding paperboard boxes as illustrated in Figs. 3 and 4, and also shows a formula for a fibre can.

To illustrate the use of these formulae, suppose we desire an RSC with a width/length ratio of 0.8, and a volume of 1,000 cu. in. Then: $L = x$; $W = 0.8x$; and $V = 1{,}000$ cu. in. From formula (5) we see that

$$L = x = \sqrt[3]{\frac{V}{2a^2}} = \sqrt[3]{\frac{1{,}000}{2(0.8)^2}} = 9.2 \text{ in.}$$

$$W = ax = 0.8 \times 9.2 = 7.4 \text{ in.}$$

$$D = 2W = 2(0.8 \times 9.2) = 14.8 \text{ in.}$$

Thus, the required size of the RSC is 9.2 in. x 7.4 in. x 14.8 in.

Finally, in Fig. 2 we show a curve of board area versus $a$ ratio, illustrating that for the chosen style box (RSC) there is one best value for $a$, namely, 0.5. Thus when $a = 0.5$, board area is greater for all smaller and larger values than the example in which the derivative equals zero.

## BOARD AREA VS. DESIGN

We know that the most favorable combination of dimensions for an RSC for L:W:D is 1:0.5:1. However, about the only place where this relationship is commercially applicable is for products shipped in bulk. If we have a shaped commodity, like folding cartons, we may not be able to use the 1:0.5:1 arrangement. But use of the $a$ ratio permits us to find the next best solution when the best is not possible.

### Can't Always Use Formulae

Unfortunately, we cannot always use the formulae. Consider the case of the Center Special Full Flap Slotted Container (CSFFSC) illustrated in Fig. 1. From Table 1 we

TABLE I

Minimum Board Area Formula For Corrugated Shipping Containers

| Box Style* | Best a-Ratio | Formulae $L = x$: a = Best | Formulae $L = x$: a ≠ Best | W = ax | D = y |
|---|---|---|---|---|---|
| Regular Slotted Container (RSC) | 0.5 | $\sqrt[3]{2V}$ | $\sqrt[3]{\frac{V}{2a^2}}$ | aL | 2W |
| Center Special Slotted Container (CSSC) | 1.0 | $\sqrt[3]{\frac{V}{2}}$ | $\sqrt[3]{\frac{V(1+a)}{4a^2}}$ | aL | $\frac{V}{LW}$ |
| Full Flap Slotted Container (FFSC) | 0.5 | $\sqrt[3]{V}$ | $\sqrt[3]{\frac{V}{4a^2}}$ | aL | 4W |
| Center Special Full Flap Slotted Container (CSFFSC) | 1.0 | $\sqrt[3]{\frac{V}{3}}$ | $\sqrt[3]{\frac{V(1+a)}{6a^2}}$ | aL | $\frac{V}{LW}$ |
| Double Cover Box | 1.0 | $\sqrt[3]{V}$ | $\sqrt[3]{\frac{V(1+a)}{2a^2}}$ | aL | $\frac{2W}{(1+a)}$ |
| Half Slotted Container (HSC) | 0.5 | $\sqrt[3]{4V}$ | $\sqrt[3]{\frac{V}{a^2}}$ | aL | 4W |

*See Fig. 1

TABLE II

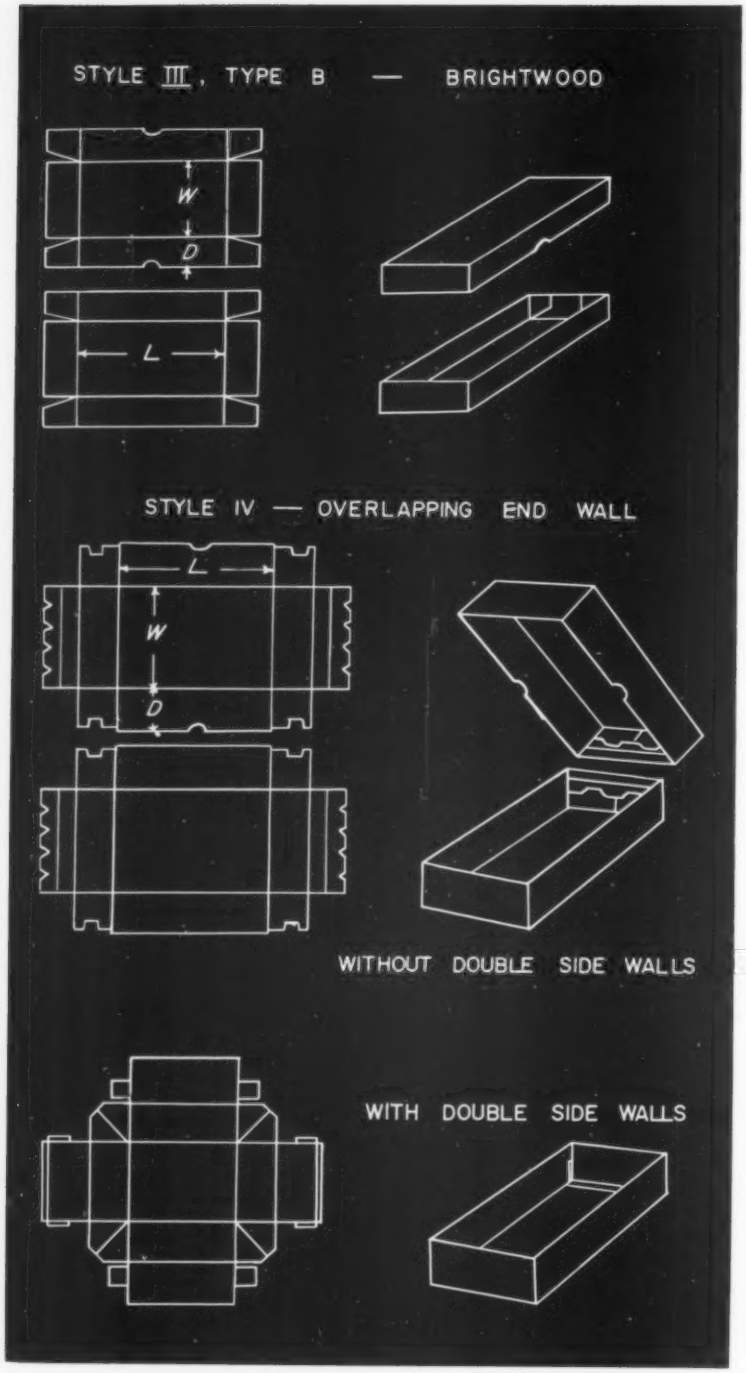
Minimum Board Area Formula For Folding Cartons And A Fibre Can

| Style* | PPP-B-566a Specs† | Best a-Ratio | Formulae $L = x$ | $W = ax$ | Comments |
|---|---|---|---|---|---|
| Seal End | Style I | 0.47 | $\sqrt[3]{\frac{V}{4a^2}}$ | aL | D = 4W (See Nomograph Fig. 6) |
| Tuck End | Style II, Type A | 0.75 | $\sqrt[3]{\frac{V}{4a^2}}$ | aL | D = 4W (Tuck Flap taken as 0.75in.) |
| Tube and Slide | Style VI | 0.30 | $\sqrt[3]{\frac{V(2+3a)}{3a^2(2a+1)}}$ | aL | kax = 0.625‡ (usually) |
| One Piece Folder | Style VII | 0.34 | $\sqrt[3]{\frac{V}{4a^2}}$ | aL | D = 4W |

| | | | Formulae $W = x$ | $D = ax$ | |
|---|---|---|---|---|---|
| Brightwood | Style III, Type B | 0.25 | $\sqrt[3]{\frac{V}{4a^2}}$ | 4W | |
| Overlapping End Walls | Style IV, Double Side Walls | 0.25 | $\sqrt[3]{\frac{V}{6a^2}}$ | 6W | if $k = ax/2$ |
| | | 0.25 | $\sqrt[3]{\frac{V(2a+1)}{4a^2(2a+1+k)}}$ | 6W | if $k \neq ax/2$ |
| | Style IV, No Double Side Walls | 0.13 | $\sqrt[3]{\frac{V}{8a^2}}$ | 8W | if there is no Locking Flap |
| | | 0.14 | $\sqrt[3]{\frac{V}{9a^2}}$ | 9W | good approx. when k≠0. Error in blank area from ideal is 0.05%; k varies with board caliper |

| | | |
|---|---|---|
| Convolute Fiber Can | Can radius = $r = \sqrt[3]{\frac{V}{2\pi}}$ | Can height = $h = \frac{V}{\pi r^2}$ |

*See Figs. 3 and 4.
†Federal Specifications dated Aug. 31, 1960.
‡k = variable fraction multiplied by ax to give desired width of locking flap, tuck flap, etc.




**4** **BRIGHTWOOD FOLDING CARTON STYLES** per Federal Specification PPP-B-566a, dated August 31, 1960. Standard order of specifying dimensions for folding cartons (see Figs. 3 and 4) is: (1) larger dimension at opening; (2) smaller dimensions at opening; and (3) remaining dimension. All measurements are given from center of crease to center of crease. Paperboard industries adopted this simplified standard to eliminate misunderstanding and errors.

see that the best $a$ ratio is 1.0. But in actual commercial practice this style is never used unless $L$ is at least equal to $2W$. Furthermore, when $a = 1$, the box would not be this style at all; so $a$ cannot be equal to 1. However, the formula can be used, and has practical significance for $a$ ratios of 0.5 or less.

The best or minimum board area formula does not always give a true picture of board savings. This is true of several container styles. Consider, for example, the Center Special Slotted Container (CSSC) illustrated in Fig. 1. To make this box you need a sheet size ($L$ + $D$ + scoring allowance) by ($2L$ + $2W$ + scoring allowance)—the over-all blank dimensions as run on the corrugator. (Remember, too, that the cost of the box is calculated by the blank area run on the corrugator—not by the amount actually used in the container.)

To make the outer flaps on this box meet, it is necessary to cut them down by putting them through a flap cutter since their dimension is $W/2$, while the dimension of the inner flap is $L/2$. This cut-off board is not "saved"; it is scrap and has no value other than waste paper.

### Folding Cartons

Other examples are found in styles of folding cartons which have blank shapes permitting them to be nested. These permit greater utilization of the sheet area. Suppose the present dimensions of your carton are such that a given sheet size permits printing and cutting 24 cartons at one time. If you redimension the carton in accord with a minimum possible area formula, a real savings will result only if:

1. You can reduce the over-all sheet size necessary to accommodate the 24 cartons.
2. You can accommodate more than 24 cartons on the same sheet size.
3. You can make a gain in the number of cartons up at a less than proportional increase in the required sheet area.

Otherwise, no savings result be-

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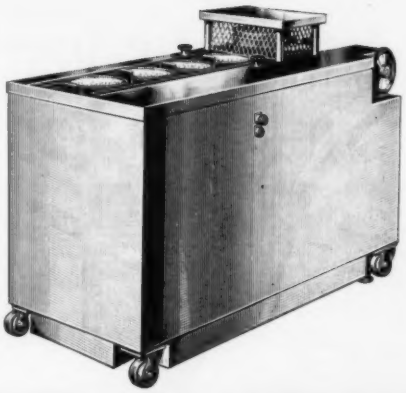

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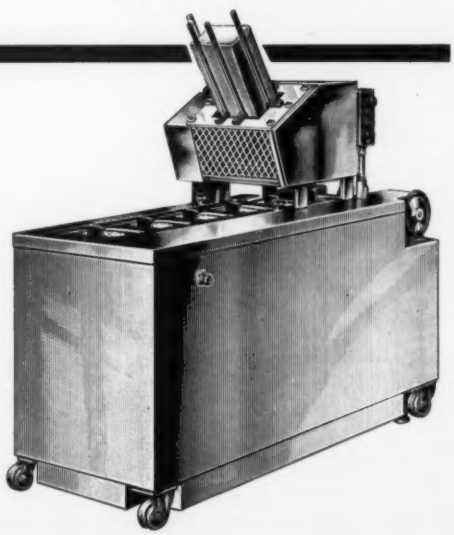

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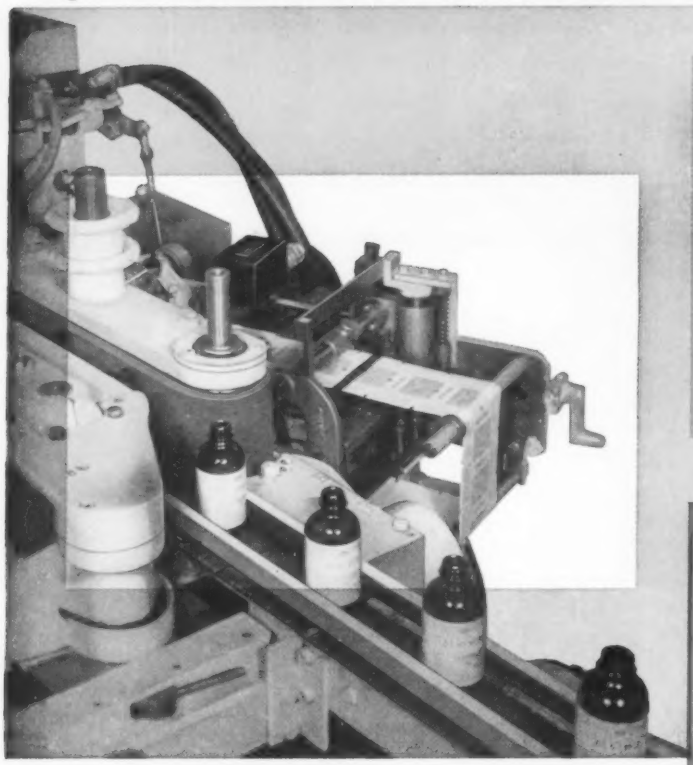

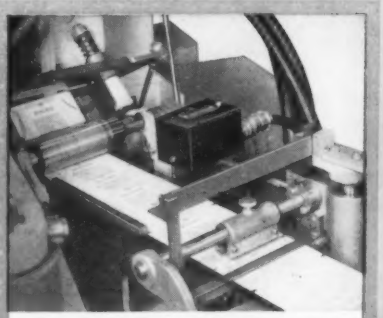

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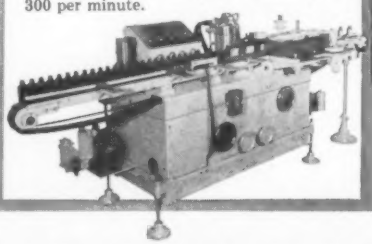

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cause the board saved is only reflected in increased trim scrap.

It is conceivable that by redimensioning you can add to, rather than lower, the cost of the carton, particularly if the altered shape necessitates a larger sheet or reduces the number of cartons up. This example clearly points up the advisability of the carton designer working closely with the carton producer to avoid such mishaps.

### Container Performance

Minimizing board area can also affect shipping container performance. In looking for a shipping container that will stack properly in a warehouse, give the product the needed protection, lend itself to palletizing, go through an automatic sealing line, etc., you may find that use of the maximum amount of board, rather than the minimum, is really the most economical when you consider all factors. At other times you have to compromise between the minimum board area and maximum performance. In each instance, you must take into account the needs of the product. Clearly, if you have a fragile product packed in an RSC and stack the boxes end-to-end (because in this direction you get the most compression strength), then you must choose a box as nearly square as possible, rather than one with a small *a* ratio. This is true because the width dimension is the most critical in end-to-end compression (6).

### Package Appearance

You must also consider that optimizing package dimensions to minimize board requirements can affect the appearance of the box. Thus if your merchandising requirements are adversely affected by the redimensioning process, or perhaps the over-all appearance is less pleasing to the eye, then you may well choose to sacrifice the minimum board area savings. In any event, in the redimensioning process you must take into account the full function of the package.

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*(The second and concluding part will appear next month.)*


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# Production men examine roll-fed labeling problems

Pro's and con's of roll labeling, "black marks" and electric eyes instead of coding, control of label quality—all these came in for close scrutiny during New Jersey Machine Corporation's recent seminar on roll-fed labeling. Speakers from pharmaceutical companies compared roll-fed and cut labels, and supplier representatives discussed cost and quality control problems.

Telling how his company achieved roll-fed labeling at volume production speeds, Edward Wixted, manager of industrial engineering, Schering Corp., Union, N.J., stressed the importance of eliminating the separate coding of labels. He cited six advantages and six disadvantages of roll labeling as a basis for evaluation.

### Advantages

1. There is less downtime when transferring belts; cut labeling entails constant adjustment of machinery.
2. You have better control of the labeled product.
3. Since coding of roll labels takes place on the labeling machine, it eliminates the precoding of labels.
4. There is less handling of materials and no chance for labels to get mixed up with other labels.
5. You eliminate glue handling.
6. There is less direct labor since roll labeling entails one girl for three machines in contrast to one girl for one machine with cut labels.

### Disadvantages

1. The increased cost of roll labels with thermoplastic adhesives.
2. The difficulty of educating printers on a very exacting production problem.
3. Getting a satisfactory machine forced Schering engineers to work closely with machinery supplier engineers.
4. The machine design must permit changing label rolls "on the fly."
5. Roll labeling takes a higher quality of adhesive.
6. Because any variability affects both adhesion and printing, the supplier must furnish paper of constant quality.

### Need High Speed

To illustrate the importance of having to do roll labeling at production line speeds, Mr. Wixted told "the Coricidin story": In an interval of about three years, annual production of this item jumped from 200,000 to 4,500,000 vials—and current figures run higher. This requires labeling at 240/min., according to Mr. Wixted, who said his company uses 16-in. rolls with 25,000 labels per roll.

This means large inventories of labels and high cost when changing label designs. During 1960, changes of label plates cost his company some $50,000, he said. Further, Mr. Wixted warned his audience of downtime for roll changes, suggesting that a change may take 3 min. or longer.

### Role Of Black Marks

Discussing black marks printed on the backs of roll labels to actuate cut-off, Harry Moeller, director


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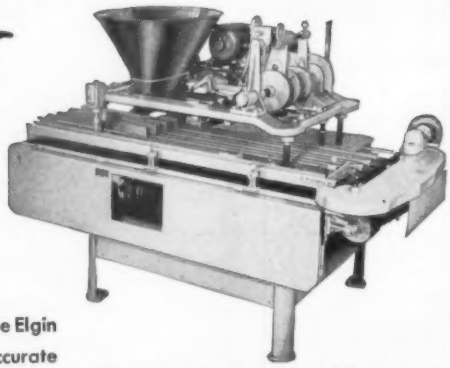

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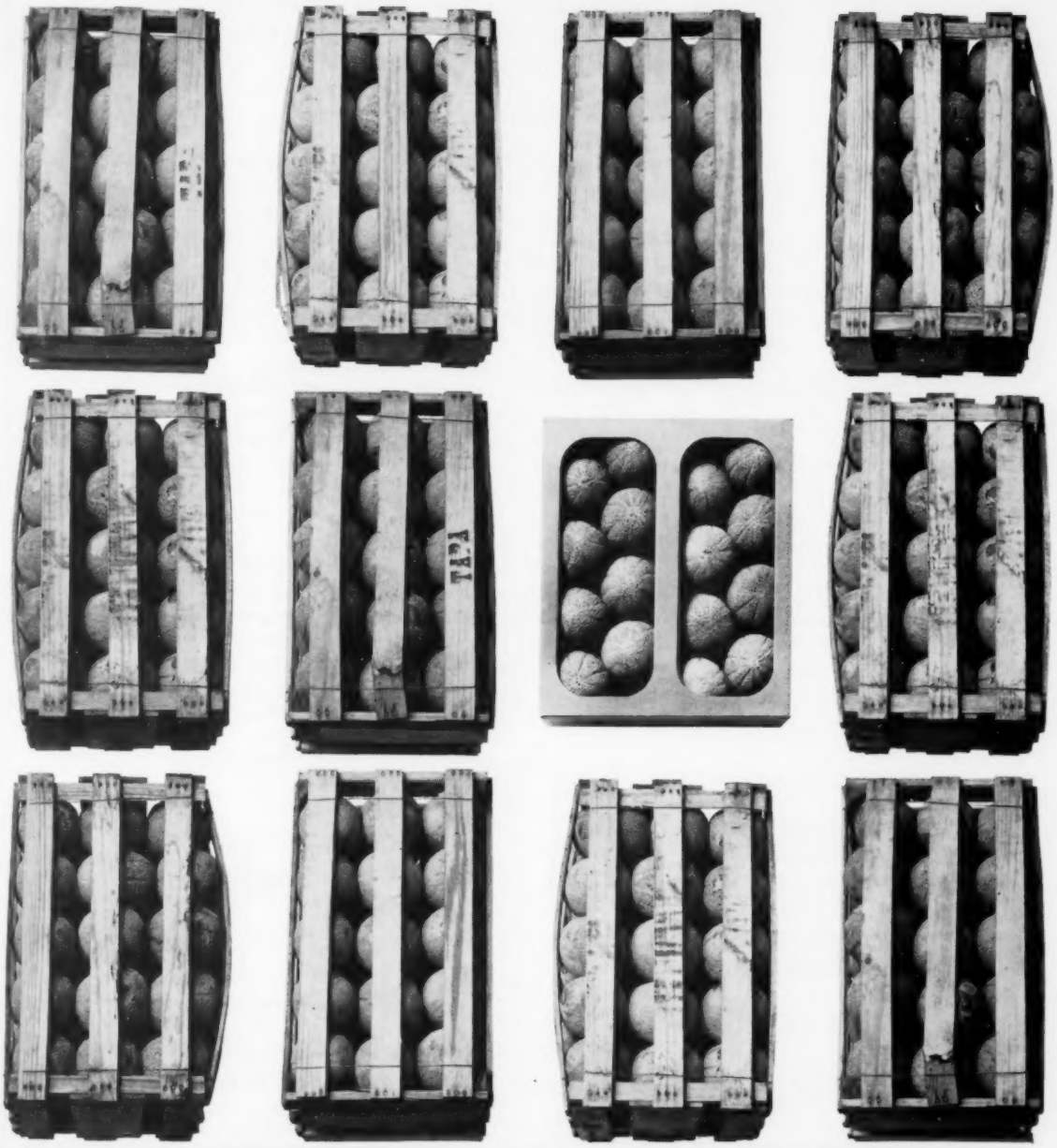

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of industrial engineering, William S. Merrell Co., Cincinnati, reviewed "the Cepacol story." He told those attending the seminar that printing black marks on label backs instead of cutting tiny holes through labels permits printing labels by rotogravure and avoids mixing up of labels.

The black marks are different for each product. If a roll of labels whose marks do not coincide with the plate get in the machine, the machine stops. The code marks in the electric eye must correspond with those of the product being labeled.

### Aids To Efficiency

Mr. Moeller says line efficiency is 92 per cent and nearly all downtime is for changing rolls. While this can take as long as 3 min., an average change takes just 45 sec., he said. This means making virtually a flying splice. Usually there are roll changes twice a day.

When a problem of poor cut-offs showed up, they traced it to overhead lights which were affecting the electric eye. Shading these lights eliminated the difficulty, Mr. Moeller noted.

While his plant does not have any special storage practice for these thermoplastic labels, he suggested using rolls within six months of receipt. He placed the cost of roll labels at about $1.50 per thousand—half the cost of cut labels.

He also said that roll labels eliminate hand coding when short shutdowns occur that waste some labels. Similarly, with cut labels one girl would spend about half her time fanning bundles of cut labels to make them loose. With roll labeling, this same girl now spends her time on hand banding at a rate of 45/min.

Special art work is necessary for roll labels, according to Walter Rausch, superintendent of printing, Merck Sharp and Dohme, West Point, Pa. He said it is impossible to use the same art work for cut labels and roll labels. However, the costs of roll labels are comparable to those of cut labels, he noted. Normally, he turns these out in 10-in. rolls but occasionally produces some in 5-in. rolls.

### Production Problems

Representatives of suppliers warned package users of difficulties accompanying the use of roll labeling: Kenneth Baumgen, general superintendent, Globe Ticket Co., Philadelphia, cautioned those present to be alert to the problems of dirt when selecting an ink type. Fred Holt, vice president and technical director, Brown Bridge Mills, Troy, Ohio, spoke of having to install equipment, particularly designed to print on thermoplastic paper. Robert F. Wheeler, merchant sales manager, Nashua Corp., Nashua, N.H., stressed the importance of slitting paper free of dust.

This dust can come from slitting the paper or slitting the adhesive. He also suggested three methods of applying adhesive to paper: water emulsion, solvent solution, hot melt.

*(End)*


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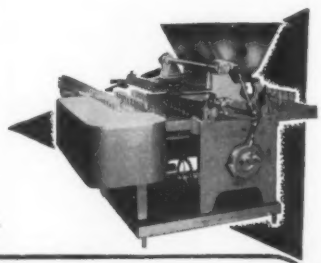

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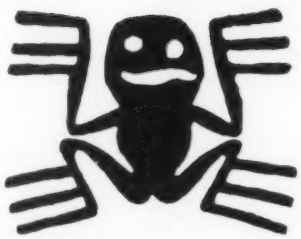

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## 1—Multi-Compartment Package For Instant Mixing

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ICE COLD DRINKS WITHOUT ICE OR REFRIGERATION
IDEAL FOR—
• PICNICS
• SPORTING EVENTS
• CAMPING
• BEACH
• BOATING
INSTRUCTIONS
FOR INSTANT CHILLING, SQUEEZE LIQUID INTO POWDER SECTION, FOLD PACKAGE TOGETHER, KEEPING FOIL SIDE TO THE OUTSIDE. SECURE ALONG PRESSURE SENSITIVE MARGIN. CUT ON DOTTED LINE AND STRAW WILL POP OUT.
PATENTS PENDING

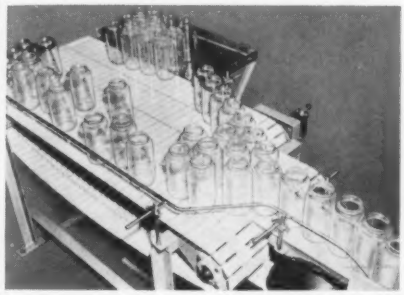
Suggested uses for this three-compartment package include cocktails and soft drinks, hot or cold foods, and therapeutic cold packs. For more information on this new package write: Continental Can Co., Inc., Dept. PE, 100 E. 42nd St., New York 17, N.Y., or *circle number on card.*

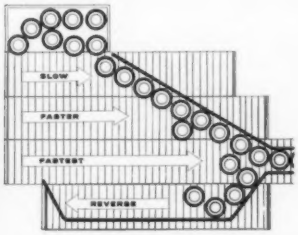
## 2—Cast-Coated Paperboard

A new process for cast coating paperboard while on the board-making machine is announced. This coated board, called Glosscoat, provides several advantages for users of folding cartons. With this new process, pastel colors (in addition to white) and higher calipers of paperboard (up to 0.036 in.) are now available. The manufacturer points out that this new method of directly cast coating while on the machine also results in all of the advantages and all of the economies provided by a single continuous operation. This high-gloss paperboard is produced by coating a chrome-plated drum with a mineral composition. This dried clay coating is then brought in contact with the paperboard which has already been coated with an adhesive mixture. Features noted for the paperboard are its printability, flexibility (it allows folding without cracking or peeling), high resistance to fading, and no overprint varnish is needed. For more information write: The Interstate Folding Box Co., Dept. PE, Middletown, Ohio, or *circle number on card.*

### 3—High-Speed Straight-Line Unscrambler/Feeder

A straight-line unit which unscrambles containers by take-away on three forward moving conveyor belts features a reverse-direction belt which recongest on the final infeed belt, they are forced onto this reverse-direction belt which diverts them and then returns them for a new start. This unscrambler-feeder unit will handle rigid containers of most any shape, filled or empty, ranging in size from approximately 4 oz. to 1 gal. Each machine is engineered for its specific application and has a variable-speed drive. Approximate operating speeds range from between 10 to 500 containers per minute. This unscrambling and feeding system can be loaded from either the side or the end. The conveying belts are made of self-lubricating Delrin plastic to prevent rust and corrosion. All four of the belts are powered from a single variable-speed drive motor—h.p. is dependent on the size of the unscrambler unit. For more information write: Standard Metal Products, Dept. PE, 123 N. Racine Ave., Chicago 7, Ill., or *circle number on card.*






moves the containers from a congested area to prevent jamming. Each forward-direction belt moves at a progressively higher speed to permit gradual acceleration and transfer of the containers to the maximum speed take-away belt. The fastest belt is geared to the speed of the packaging equipment (such as fillers or coders) to which it feeds the containers. As additional containers are loaded onto the platform and first belt, they push the other containers onto the faster moving belts to automatically accommodate the increased volume of containers. To eliminate jamming up of containers on the fastest moving feed belt, a fourth belt—running in the opposite direction—has been incorporated into the unscrambler. As the containers begin to

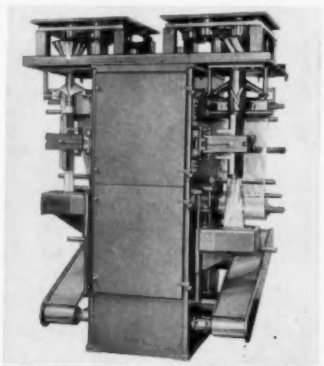
### 4—Pouch In Carton

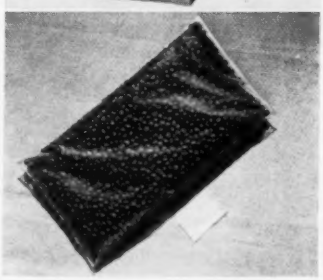
A preassembled paperboard carton lined with a heat-sealable polyester bag has been introduced to facilitate inplant handling and freezing of foods. Called the Kapak package, this unusually shaped carton-pouch container is designed primarily for heat-in-pouch foods. Features noted by the manufacturer are that it facilitates high-speed filling of plastic boilable pouches, eliminates separate handling of a carton and the pouch (this

is now one operation), protects the pouch from developing flex cracks and pin holes, and the pouch is easily removed from the carton. The plastic bag is made from 0.002 in. Scotchpak brand polyester film which is heat sealed at temperatures of 300° to 400°F. The pouch has a wide opening for fast filling, is sealed by heat after filling, and the lightweight exterior carton has a slotted closure. The pouch will hold from 5 to 7 oz. of product. For more information write: Kapak Products Co., Dept. PE, 130 S. Wabasha St., St. Paul, Minn., or *circle number on card.*

### 5—Form-Fill-Sealer

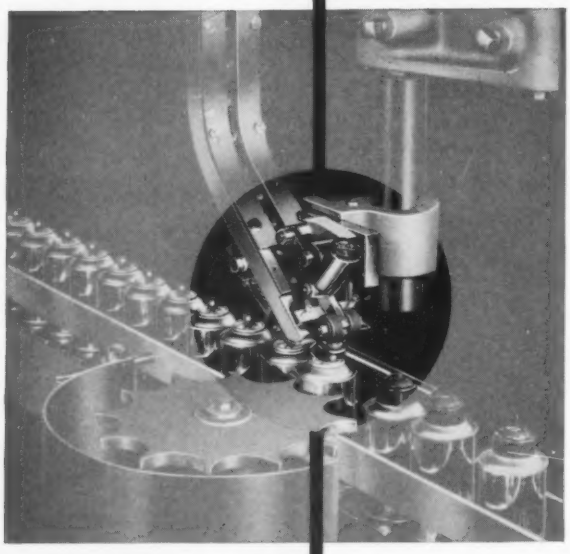
Introduced is the new Stokewrap 1000—a pouch forming, filling, and sealing machine. This is a double-tube machine





which produces packages on the same basis that two single-tube units would. With the two tubes operating either in tandem or independently, this machine precision-measures and packages free-flowing products such as frozen foods or candies. Either pillow or four-seal type packages are directly formed from roll stock of heat-sealable plastic film, paper, foil, or other

# A CONSOLIDATED H-O-F CAPPER SPEEDS PRODUCTION... PROTECTS PROFITS...



***PRODUCTION SPEEDS UP TO 300 METAL OR PLASTIC OVERCAPS A MINUTE!***

Now you can increase your profits through faster production on your capping lines. Consolidated's H-O-F Capper applies up to 300 metal or plastic closures a minute.

No jam-ups. No missed containers. Escapement mechanism automatically holds back overcaps until container is in position... then rolls each closure on carefully and precisely. If there's no container, no overcap is released.

The Consolidated H-O-F can be changed over from one diameter or height of container to another simply and quickly. It is easily adaptable for the various types of fitments specially designed for the Food, Cosmetic and Drug industries. Unusual speed ranges are available.

Find out how the H-O-F Capper can speed your capping lines and protect profits in drug, cosmetic and aerosol fields.

**CONSOLIDATED PACKAGING MACHINERY CORP.**

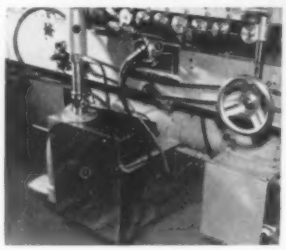
**1400 West Avenue • Buffalo 13, New York**

*A Subsidiary of International Paper Company*

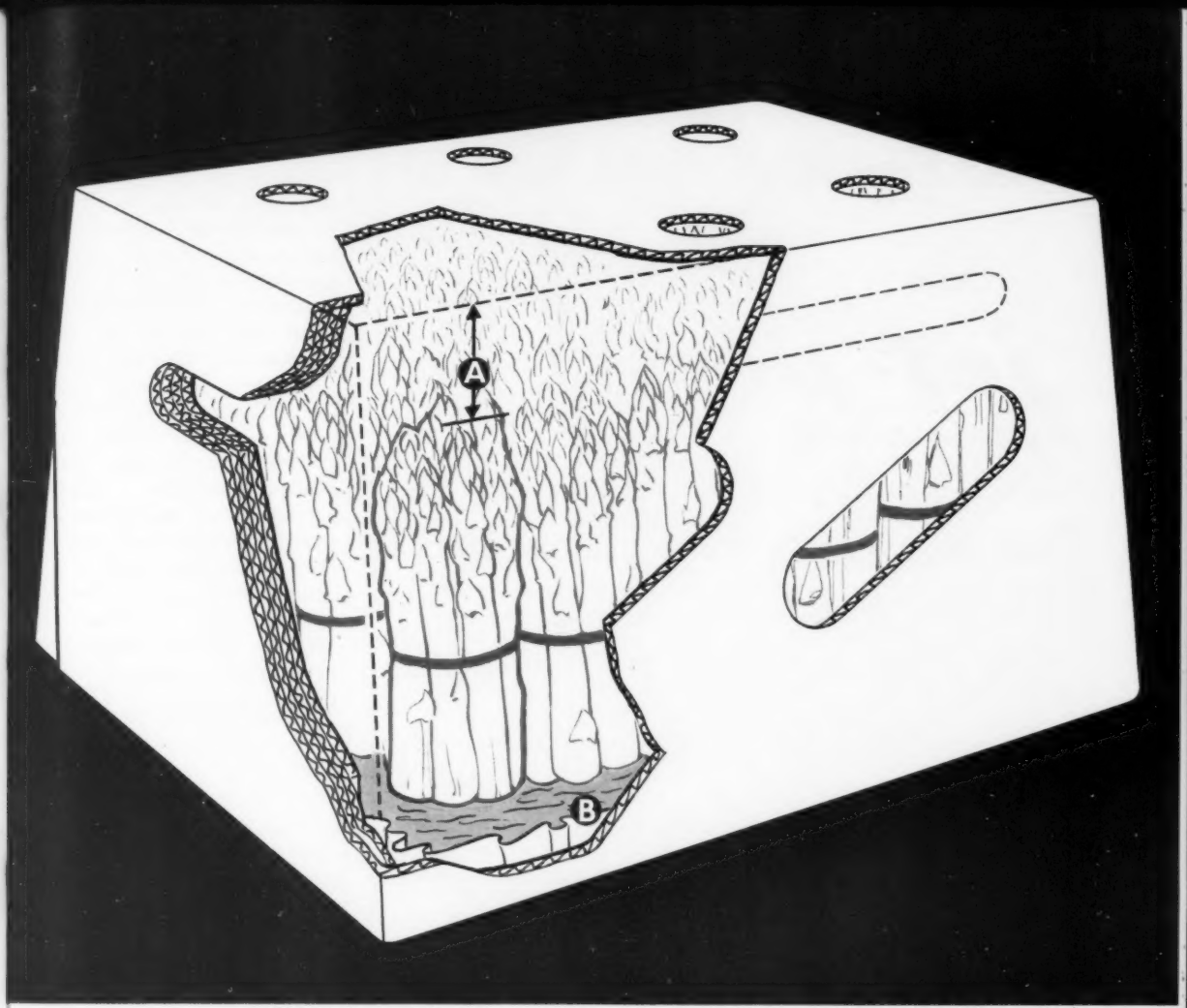

laminates with either impulse or conventional sealing methods. The machine's major feature is its versatility, the maker says, and this is due primarily to the independent drives that make it possible to operate either of the two tubes independently. This means that the machine can simultaneously run two different sizes with different products and with different feeds. Also, this machine can simultaneously seal two styles of pouches (produced at different speeds) by different sealing methods. The unit operates at speeds up to 150 packages/min. producing pouches from 2x3 in. up to 8x14½ in. For more information write: FMC Packaging Machinery Div., Food Machinery & Chemical Corp., Stokes & Smith Plant, Dept. PE, 4994 Summerdale Ave., Philadelphia 24, Pa., or *circle number on card.*

**6—Closed Glue System**

Announced is the development of a new enclosed glue system for automatic packaging ma-



chines. This Maraseal system is a completely closed unit which operates on combined electrical-pneumatic power. A stainless steel pump designed specifically for pumping water-soluble adhesives from its own stainless supply tank through sealed supply lines to points of use is employed in this system. This is a primary feature for food packaging operations where sanitation requirements are an important factor. This system can be adapted to packaging machines currently using either gravity- or open-type glue pots and enables proper viscosity of




*Three-inch space (A) permits asparagus to grow and water-filled waxed kraft tray (B) keeps it from drying out.*

# International Paper's new water-tray container allows asparagus to grow while it is being shipped

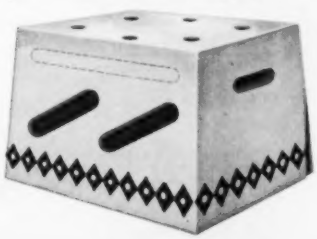
THE asparagus industry needed a container that would pack easily, permit fast inspection, and keep their asparagus from drying out during shipment.

You can see our solution. At the bottom of this corrugated container is a waxed kraft tray which holds water during shipment. This keeps the asparagus from drying out. In fact, it actually *grows from one to two inches during shipment.*

For easy packing, this container is tapered to correspond with the shape of the asparagus bunches. And there's a tear strip along the top of the box for quick inspection.

In all containers, International Paper uses Gator-Hide® kraft for greatest strength, uniform color and a smooth surface. And we can print your brand name and sales message —*in color*—on each box.

If you have a packaging problem, it will pay you to talk to your nearest International Paper packaging expert. International Paper—*your most dependable source of supply.*



INTERNATIONAL PAPER

CONTAINER DIVISION · NEW YORK 17, N. Y.

# Package small items the Easy Way!

WITH

# jet-pak

CUSHIONED-INSULATED SHIPPING BAG

## SAVE TIME, MONEY AND DIRECT LABOR COSTS

Why spend more than 15 seconds in packaging small items?

With JET-PAK, you or your employees can have small items ready for mailing in 15 seconds *or less!* JET-PAK is a simple, complete, *new* packaging idea that eliminates *all* waste motion . . . yet costs *less* to use than any other packaging material.

*Simple, easy, fast . . . ready for mailing in 15 seconds or less*

## INSULATES, PROTECTS, SECURES

The contents of JET-PAK are protected by millions of tiny particles of resilient paper held between double walls of tough, moisture-resistant, asphalt-laminated Kraft paper. JET-PAK prevents damage from handling, pilferage, rain and severe humidity fluctuations. Drop tested by U. S. Post Office. Available in 14 standard sizes. May be inexpensively imprinted at factory per your order.

## COMPARE YOUR PRESENT METHOD WITH jet-pak

| MODERN PACKAGING REQUIREMENTS | jet-pak | YOUR METHOD |
|---|---|---|
| 1 High Security | Approved by U.S. Post Office | |
| 2 Low Material Cost | 3¾¢ ea.—10M—No. 3 size | |
| 3 Lowest Labor Cost | Average—15 sec. per unit—ready for mailing | |
| 4 Minimum Waste Motion (supplying materials to bench from storeroom) | One item | |
| 5 Low Cost Imprinting | 50¢ per 1,000 | |
| 6 Simplified Procurement | 1 source | |
| 7 Clean and Attractive | Send for free samples | |
| Book Mailers of Educational Materials | Free imprint on Jet-Pak Book Bags Save on Postal Rates | |

## SEND FOR SET OF FREE SAMPLES—WRITE TODAY!

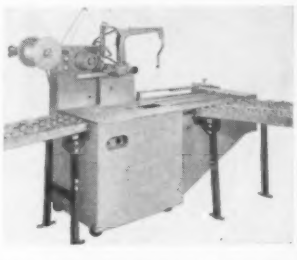
ROPE COLUMBIAN TWINES

jet-pak
Packaging Division
**Columbian Rope Company**
Auburn "The Cordage City" N. Y.


the adhesive to be maintained. Another advantage of this system pointed out by the manufacturer is that adhesives with very high viscosity levels can be used where minimum tack and drying times exist. Glue distribution patterns can be straight-line continuous or intermittent and regulated in width concentration. Glue application is delivered through the Maraseal adhesive applicator guns which are automatically operated by the carton flow. Diversified cartoning and overwrapping operations are applications mentioned for this new system. For additional information write: Marathon, A Div. of American Can Co., Dept. PE, Menasha, Wis., or *circle number on card.*

### 7—Rayon Strapping Machine

Announced is a fully automatic machine for feeding and strapping on high-speed production



lines. Introduction of the automatic feed makes the Stur-D-Strap strapping machine a completely automatic operation. The new feed system can be adapted to fit most any assembly line or conveyor operation, and the machine can be designed to strap a wide variety of packages. The strapping machine automatically applies, tensions, and seals a high-strength rayon tape on variable-size packages up to 18 in. high by 24 in. wide and any length over 10 in. The strapping machine applies a 3/16-in.-wide rayon strap and automatically adjusts to the various package sizes. Strapping tension is adjusted by a control knob on the front of the machine. For more

information write: Chicago Printed String Co., Dept. PE, 2300 Logan Blvd., Chicago 47, Ill., or *circle number on card.*

**8—Coated Polyethylene**

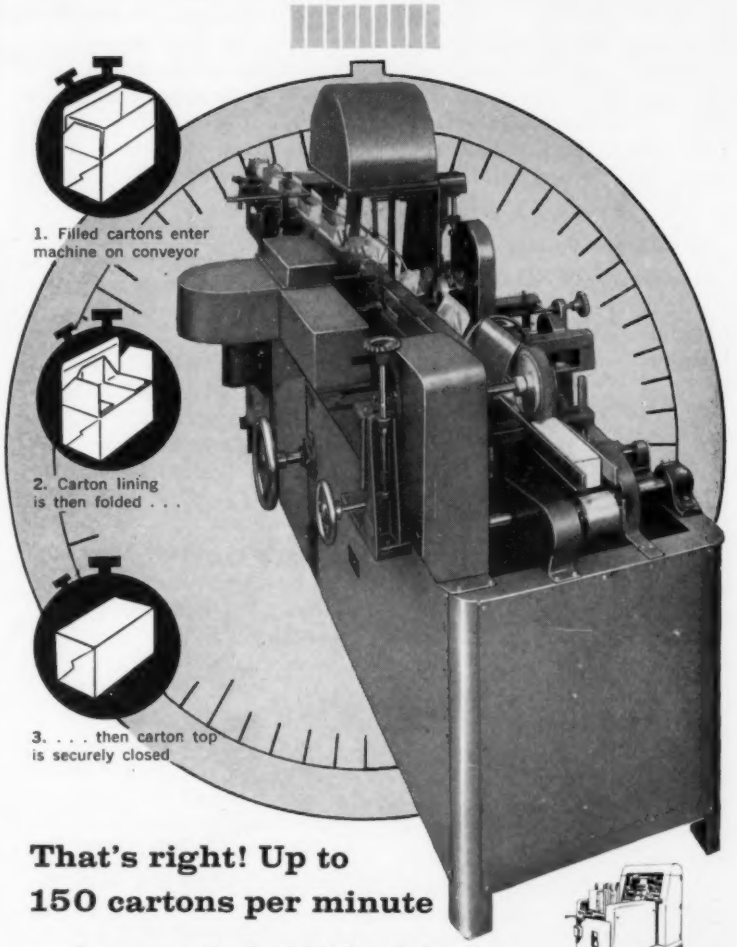
The first commercially feasible technique for coating polyethylene on both sides to produce a film which retains the positive characteristics of the basic film and eliminates its major disadvantages is reported. This new film has a polymer coating which the maker says adds resistance to the passage of oils, greases, gases, and flavors to polyethylene's basic durability and water-vapor resistance. According to the maker, this film (called PCP) also has transparency and surface gloss superior to standard polyethylene. Using somewhat higher temperatures than required on most packaging equipment for polyethylene seals, this film and the coating-to-coating seal strengths are equal to those of uncoated polyethylene, the maker states. For more information write: Olin Mathieson Chemical Corp., Packaging Div., Dept. PE, 460 Park Ave., New York 22, N. Y., or *circle number on card.*

**9—Plastic Clip**

The Kisco-Bip Plasticlip, originated in France, is now being manufactured in this country. Designed as an airtight reusable

closure for polyethylene bags, it is said by the maker to assure protection against humidity, leakage, odors, mildew, hardening, temperature changes, and

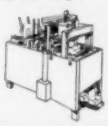

# Closes a Filled Carton in less than 1/2 SECOND!




**That's right! Up to 150 cartons per minute**

can be automatically folded and closed by Peters Model CCY-L. What's more, it handles both lined and unlined cartons (closes 120 lined cartons per minute). And it's quickly adjustable to close a wide range of carton sizes, too! Investigate **the Peters Model CCY** for closing your cartons . . . with the Model CCY-L attachment if they're lined cartons.

high-speed carton and tray forming machines


moderate-speed carton and tray forming machines

cellophane sheeting and stacking machines

carton forming and lining machines

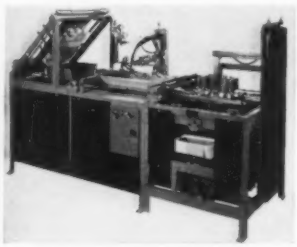
*Ask for a demonstration or write for descriptive folder*

Peters MACHINERY CO.
4700 Ravenswood Avenue
Chicago 40, Illinois

decomposition. This clip is made in a range of colors and in three sizes to provide closures for most any type of bag. It is particularly suitable for packages containing a variety of items (such as assortments or combinations of products) and for display-rack packages. For more information write: John L. Rie, Inc., Dept. PE, 196 Ashburton Ave., Yonkers, N.Y., or *circle number on card.*

### 10—Carton Former

The new model FM-60-A Crandall automatic carton forming machine has been designed for flexibility and versatility. This



machine forms and glues single-wall cartons with or without a hinged lid and double-wall cartons with preglued double side walls. A wide range of sizes and types of either paperboard or corrugated containers can be handled. Package types from pharmaceutical mailers to large double-wall hat boxes and covers are formed and glued on this machine. New glue templates and swinging spray nozzles permit a more accurate glue spray pattern, tightly glued containers, and a more rapid changeover from one size to another, the maker claims. For more information write: Crandall, Inc., Dept. PE, 104 N. Oak Park Ave., Oak Park, Ill., or *circle number on card.*

### 11—Polypropylene Tube

The first commercial plastic tube made of polypropylene was recently exhibited. In introducing the new tube, the manufacturer said that this new polypropylene tube is particularly suited for packaging cosmetics because it retains product fragrances and resists moisture transmission. It will also have wide use with pharmaceutical products requiring sterilization. In a series of permeation tests, the maker reports that in tests with olive oil at 70°C., leakage occurred after 320 hrs. as compared with only 5 hr. for low-density polyethylene. Advantages cited in the announcement of the new tube are: lightness, savings in shipping costs, heat resistance, high strength, moisture resistance and other barrier properties, transparency, inertness, high gloss, and printability. For more information write: Thatcher Glass Manufacturing Co., Inc., Plastic Container Div., Dept. PE, P.O. Box 363, Nashua, N.H., or *circle number on card.*

### 12—Greaseproof Liner

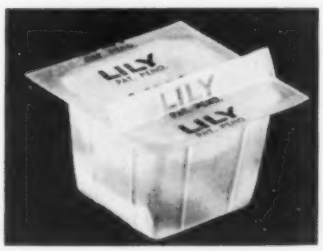
A new greaseproof paper, called Flexobag Greaseproof, for use as an inner liner in multiwall and duplex bags is available. Among the functional features cited by the maker for this paper are its high degree of greaseproofness for both flat surfaces and folds and creases, and its strength combined with easy handling flexibility. The paper is designed for a wide range of applications where both high-fat protection and packaging economy are desired. For additional information write: Rhinelander Paper Co., Dept. PE, Rhinelander, Wis., or *circle number on card.*

### 13—Bag Maker-Sealer

A new semiautomatic machine has been developed for packaging items in polyethylene. This machine, called the Bag-Pac, makes it possible to wrap a product in roll stock polyethylene film and heat seal the package on all four sides. The machine can also be used for making bags with only three sides sealed. Among the features noted by the manufacturer are: quick roll change because no mounting is necessary, friction unwind, opener and loading platform, dual hold-down for positive seals, and an adjustable drop table to compensate for varying package heights. Six different sizes of this machine make bags and packages ranging in size from a postage stamp to 30x30 in., and they handle a wide range of film gauges and widths. For more information write: Cherrin Bag-Pac Co., Dept. PE, 6340 Miller Rd., Dearborn, Mich., or *circle number on card.*

### 14—Portion-Control Package

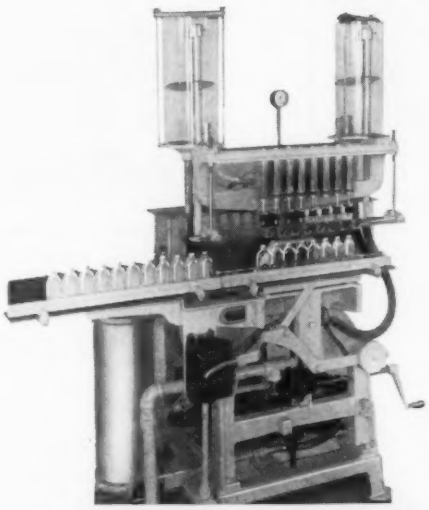
A new concept in package and machine design, specifically engineered to provide a sanitary,




sealed portion-control package, has been introduced. According to the maker, the complete program provides the packager with a low-cost functionally sound package utilizing high-speed filling equipment. The announcement of the development states the system improves pre-handling, filling, and sealing of individual portion-controlled items. Advantages pointed out by the maker are: the machine accurately speed-fills up to 150 packages/min.; the package is heat sealed for product protection; the new closures open easily and permit pouring, spooning, or shaking; and the completely automatic operation from filling to sealing assures full sanitation. This machine handles packages ranging in size from ½ oz. to 1 oz. Creams, jellies, condiments, and a variety of other products such as pharmaceuticals are some of the sug-

## PROBLEM

**Limited production—several product types**



## ANSWER

# Semi-automatic vacuum filling, SAMCO JR. style

This machine was "tailored to fit" the need for no-drip vacuum filling of smaller runs. Handles a variety of liquids and a wide range of container sizes... from one ounce to one gallon. Six filling heads... with room for more if desired. Very simple to adjust — only 5 to 10 minutes required for size changes.

It's the ideal in-between filling machine — time tested and proved beyond question in plants where flexibility is a "must" requirement. Write for complete information.

another **SEMI-AUTOMATIC** by **PNEUMATIC**

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77 Newport Avenue, Quincy 71, Mass. *Branches, Chicago and New York*
Please send us complete information on Samco Jr.

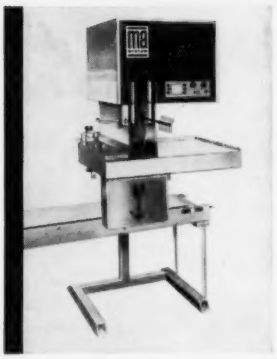
NAME_____ Position_____

COMPANY_____

ADDRESS_____

Circle No. 279 on Card

# A new low-cost automated polyethylene packaging system



**FUNCTION:** Completely packages products in polyethylene film —in one operation—in your plant. Produces inexpensive loose or shrink-fit polyethylene packages around regular, odd-shaped or out-sized products of all types. **ADVANTAGES:** Uses polyethylene roll stock. Saves up to 50% on material costs over ready-made bags and other packaging methods and materials. • Boosts in-plant packaging efficiency, produces up to 30 packages per minute at reduced labor costs. • Provides a self-selling plain or printed package that protects, displays, reduces damages caused by excessive handling. • Simple to Operate—Easy to Maintain. **COST:** Complete MA Systems normally range from $2000 to $4000. **FREE OFFER:** Let the MA System test-package your product in durable, transparent polyethylene. Send us a sample, or write for complete details on this revolutionary packaging system to either: Mehl Manufacturing Company, 2057 Reading Road, Cincinnati 2, Ohio—or—Kordite Company, Macedon, New York.

ma SYSTEM

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# A BETTER CLOSURE for SMALL PAPER BAGS

UNION SPECIAL'S *Style 60000 D* Bag Closing Machine, producing the exclusive Dubl-Tape closure, is designed to speed packaging . . . cut costs . . . and improve appearance.

- **FAST—Speed to match output of standard filling and weighing equipment.**
- **NEAT—Produces an eye-pleasing, sales-stimulating package with high merchandising value.**
- **ECONOMICAL—Operating cost per bag is at a minimum . . . uses inexpensive cotton thread and paper tape.**
- **VERSATILE—Adjustable for a wide range of bag sizes, short or long runs.**

Write for BULLETIN No. 100 to get the complete facts on this machine . . . and how it can do a better closing job for you.

FINEST QUALITY

Union Special® MACHINE COMPANY
407 N. Franklin St., Chicago 10, Ill., U.S.A.

BAG CLOSING MACHINES

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## SECRET FLAVOR...
## AND IT'S PROTECTED WITH Patapar®

Habbersett Brothers, Inc., Philadelphia, has used Patapar Vegetable Parchment to protect the flavor of their secret scrapple mixture since the days when the product was sold in 15-pound tins. At that time, the surface cover for the scrapple was pure, tasteless, odorless Patapar.

Now, the handy one-pound and two-pound portions are protected and heat-sealed in packages made of pure, tasteless, odorless Patapar Vegetable Parchment distinctively printed with vegetable inks. The whole air-tight package is machine formed and heat-sealed in seconds.

Habbersett Brothers, Inc., uses a similar type package made of Patapar for their high quality sausage.

To lower packaging costs and assure your customers of consistent product quality, investigate the use of Heat-Sealing Patapar in your packaging operation. Name *your* product and we'll send free samples of the correct Heat-Sealing Patapar.

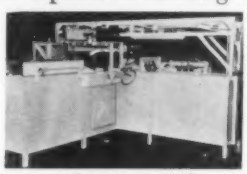
PATERSON PARCHMENT PAPER COMPANY
*Bristol, Pennsylvania*
NEW YORK, N.Y. CHICAGO, ILL. SUNNYVALE, CALIF.

Patapar®
VEGETABLE PARCHMENT

gested applications. For more information write: Lily-Tulip Cup Corp., Dept. PE, 122 E. 42nd St., New York 17, N.Y., or *circle number on card.*

### 15—Casing Machine

Introduced is an automatic case set-up, loading, and sealing machine capable of handling vari-



ous sizes of corrugated containers. Developed by The Systemation Corp. (an affiliate of Bemis), this machine is easily adjusted to handle various sizes of end-loaded cases at operating speeds of up to 10 cases/min. Called the Sysco II, this machine can be adjusted to handle containers ranging in size from ½ pt. to 1 gal. such as cans, fibreboard boxes, overwrapped multi-packs, and paperboard cartons. The corrugated shipping cases are glue sealed. For more information write: Bemis Bro. Bag Co., Dept. PE, 408 Pine St., St. Louis 2, Mo., or *circle number on card.*

### 16—Carton Former/Filler

A machine and the container which this machine forms, fills, and seals was recently intro-

duced. The container (known as a 'paq' is an air-tight semirigid square package for such items as ice cream, frozen foods, and freeze-dried foods. This container is made of an exterior of aluminum foil on paperboard and the inside is treated with a plastic material. Air-tight sealing is accomplished electronically on the new Paktronic machine which also forms and fills the container. Some of the ad-

vantages pointed out by the manufacturer of the machine and container are: it can be filled and sealed at least twice as fast as by exisiting methods, it is expected to be less expensive than exisiting containers used for ice cream, it is leakproof, it opens easily by means of a pull tab, and it can be reclosed. For more information write: Foils Packaging Corp., Dept. PE, 307 E. 4th St., Cincinnati, Ohio, or *circle number on card.*

### 17—Ultrasonic Sealer

Announced is a new ultrasonic device which seals polyester films without heat. This device,

called Sonoseal, uses sound waves above the audible frequency in its welding procedure. It does not use the dielectric or resistance heating methods, which the manufacturer claims deprives the oriented plastic films of their unusual strength during the seaming or welding process. The new device forms a non-contaminated hermetic seal. Demonstrated in a mobile console model form, the device can also be adapted to laboratory, production line, or specialized uses because of the flexibility of its design and simplicity of fabricating, the manufacturer states. A built-in frequency control device adjusts for the thickness of the material. The unit is capable of providing seam widths from 0.030 to 0.1000 in. or wider. In the case of pharmaceuticals or food packaging, where contamination of the plastic by the product is a serious problem in other heat-seal processes, the manufacturer states that this unit eliminates these problems because it seals directly through abrasive powders, oil, or even under water. For more information write: International Ultrasonics, Inc., Dept. PE, 1697 Elizabeth Ave., Rahway, N.J., or *circle number on card.*

### 18—Label Adhesive

Announced is a new transparent bottle labeling adhesive known as Clearchem. The transparent characteristics of this new adhesive eliminate the undesirable appearance of globs and smears which result from adhesive squeeze-out or slip during the labeling process, according to the developer. The announcement states that this adhesive has outstanding bonding and machining properties which combine to provide economies and a smooth operation, the manufacturer states. This adhesive is cold- and water-resistant, and most types of label stock can be used. For more information write: National Starch & Chemical Corp., Adhesives Div., Dept. PE, Grand Central P.O. Box 50, New York 17, N. Y., or *circle number on card.*

### 19—Pouch Packager

Speeds of between 300 to 600 pouches/min. are obtainable on a new horizontal form-fill-seal machine. This continuous-motion machine forms pouches of supported films and laminations and fills with products that are solid, granular, powdery, or liquid. Single-purpose mechanisms form, fill, and seal the pouches at separate stations along the machine. The manufacturer says that even with the high production speed of this machine, heat seals are strong because its new "traveling beam" seal bars provide up to ½ sec. dwell time. For more information write: Bartelt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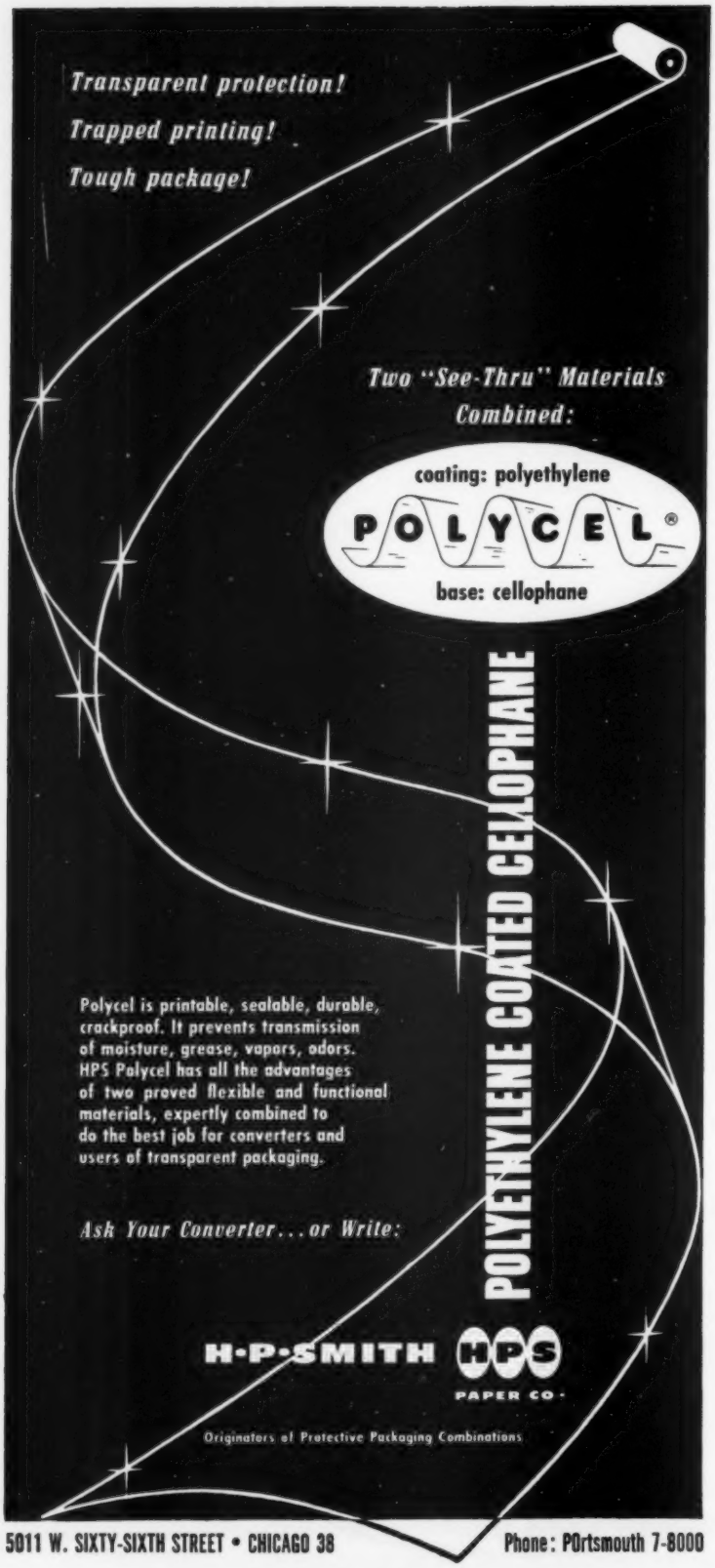
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Engineering Co., Inc., Dept. PE, 1900 Harrison Ave., Rockford, Ill., or *circle number on card.*

**20—Blister Package**

A new four-station rotary sealer for blister packages is designed for use where fewer loading

operations per package are required. Both manual and automatic models of this new machine are available. A feature is that this machine cuts out the movement of tooling for filling, sealing, and emptying. Operators load the tooling trays with blisters, merchandise, and cards as the tooling revolves to each operator's station. Each package is then automatically sealed and removed. It is automatically cycled during the loading of the trays. The machine's method of sealing the blister to the card (with the heat and pressure being applied through the card side of the package) offers several advantages over methods where sealing is performed on the blister side of the package. The manufacturer states that its method applies heat and pressure over the full flange area right up to the wall of the blister so that a neater, stronger full-flange seal is achieved. Sealing can be done at higher temperatures without damaging or deforming the plastic blister for faster sealing and greater rates of production. For more information write: Tronomatic Machine Manufacturing Corp., Dept. PE, 25 Bruckner Blvd., New York 54, N.Y., or *circle number on card.* *(End)*

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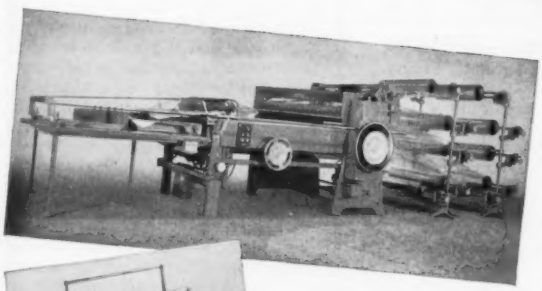

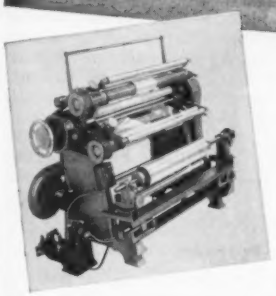

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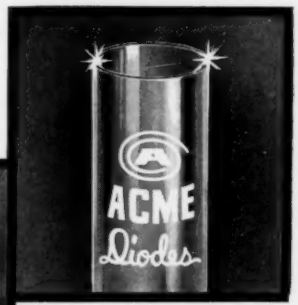

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### 101—Skin Packaging

Available is a data sheet on the Pak-O-Vac attachment, which changes a standard Pak-O-Vac vacuum forming machine into an automatic blister-forming unit. Formed parts come out in a continuous strip while machine is unattended. For further details write: Product Packaging Engineering, Dept. PE, 5713 Joanne Pl., Culver City, Calif., or *circle number on card.*

### 102—Aerosol Packages

A brochure lists the size and style range of its aerosol cans and illustrates its complete line of aerosol packages. Also covered—the market for aerosol packaged products and the function of propellants. For this brochure write: American Can Co., Dept. PE, 100 Park Ave., New York 17, N.Y., or *circle number on card.*

### 103—Heat-Seal Machine

A leaflet describes an automatic heat-sealing machine that produces an air-tight seal on polystyrene lids and trays. It will handle container sizes up to 9x11x3½ in. and practically any shape. One operator can seal up to 800 packages/hr. For more information write: G. T. Schjeldahl Co., Dept. PE, Northfield, Minn., or *circle number on card.*

### 104—Label Imprinter

The Model 806 label imprinter, cutter, and stacker is described in a brochure. Unit imprints roll-fed labels with the desired legend, and counts, cuts, and stacks them at rates up to 140 labels/min. For this descriptive literature write: Oliver Machinery Co., Packaging Div., Dept. PE, 1025 Chancy Ave., N.E., Grand Rapids 2, Mich., or *circle number on card.*

### 105—Transparent Packages

A 4-page illustrated brochure describes a variety of semirigid transparent acetate and polystyrene containers. Included are squares, rectangulars, rounds and ovals, as well as cylinders and cones, half-rounds, and variations. Some packages offer non-toxic protection to fresh, prepared, and frozen foods. For more information write: J-E Plastics Mfg. Corp., Dept. PE, 400 Nepperhan Ave., Yonkers, N.Y., or *circle number on card.*

### 106—Gummed Tapes

A pamphlet shows construction features of various types of reinforced gummed tape. Specifications and samples are included. For more information write: Central Paper Co., Dept. PE, P.O. Box 330, Menasha, Wis., or *circle number on card.*

### 107—Liquid Fillers

Bulletin No. 659F, "Distinctive Packages Require the Right Filling Equipment," illustrates and describes a variety of liquid filling machines. Speeds range up to 240 containers/min.; fills are from 1 to 360 cc.; and they handle plastic and glass containers. For more information write: Popper & Sons, Inc., Dept. PE, 300 Fourth Ave., New York 10, N.Y., or *circle number on card.*

### 108—Protective Papers

A data sheet is offered on a series of plastic-coated parchments, identified as No. 27-33T. Combining a high-gloss finish, grease resistance, moisture protection, and wet strength, these papers are available plain or printed. Samples of the product are included. For more information write: Paterson Parchment Paper Co., Dept. PE, Bristol, Pa., or *circle number on card.*

### 109—Bag Packer

Available is an illustrated pamphlet on the Rotomatic Packer. The unit automatically packages free-flowing materials in open-mouth multiwall bags. No outside source of power is required because it operates by gravity and the material being packaged activates all mechanical and weighing components. It will handle standard multiwalls from 50 to 100 lb. To obtain this pamphlet write: Raymond Bag Corp., Dept. PE, Middletown, Ohio, or *circle number on card.*

### 110—Polyethylene Films

An 8-page booklet describes the PhilJo line of polyethylene films. Said to be low in moisture transmission, the films are available in a range of types, from a single source. For this booklet write: Phillips-Joanna Co., Dept. PE, 20 N. Wacker Dr., Chicago 1, Ill., or *circle number on card.*

### 111—Protective Covers

A catalog and technical details are available on Pac-Trim, a line of reusable, expanded plastic foam protective corners. Similar to polyethylene, the material is available in stock or custom shapes. For additional information write: Pac-Tron Inc., Dept. PE, Willow St., Mystic, Conn., or *circle numbtr on card.*

### 112—Accumulator-Bundler

An illustrated bulletin is available telling how savings can be effected by bundling unit packages together in film or paper wraps. Labeling and imprinting units are available for use with this bundling equipment. For further information write: Hayssen Manufacturing Co., Dept. PE, 13th & St. Claire, Sheboygan, Wis., or *circle number on card.*

### 113—Reinforced Plastic Tape

Offered is an 8-page illustrated brochure on pressure-sensitive, reinforced vinyl plastic tape for bundling, palletizing, reinforcing, unitizing, and tear-stripping. For a copy of this brochure write: Johns-Manville Corp., Dutch Brand Div., Dept. PE, 22 E. 40th St., New York 16, N.Y., or *circle number on card.*

### 114—Hot-Melt Adhesives

Information is available on Instant-Lok, a 100 per cent solids, resin adhesives for polyethylene, foil, wet-strength kraft, and other stocks.

These adhesives extrude into a continuous glue line. No compression, water, mixing, or preparation is required. They are suggested for bag seaming, carton sealing and forming, tube winding, and similar applications. For further details write: National Starch & Chemical Corp., Adhesives Div., Dept. PE, Grand Central P.O. Box 50, New York 17, N.Y., or *circle number on card.*

**115—Propellant Blending**

Available is a technical article analyzing five methods for blending aerosol propellants. The five blending systems discussed use weigh tank, proportioning pumps, the displacement meter, radiation equipment, or entail continuous proportioning. The article is illustrated with tables, a photograph, and schematic drawings. For this information write: Union Carbide Chemicals Co., Div. of Union Carbide Corp., Dept. PE, 270 Park Ave., New York 17, N.Y., or *circle number on card.*

**116—Paper, Foil Coatings**

Two folders contain technical bulletins describing a wide variety of packaging coatings for labels, fibreboard, folding cartons, foil, sanitary packaging, and heat-sealing applications. To obtain this material write: Interchemical Corp., Finishes Div., Dept. PE, 224 McWhorter St., Newark 5, N.J., or *circle number on card.*

**117—Sealer-Labeler**

A 2-page data sheet on an automatic jaw sealer, labeler (Model PJS) is available. Head labels are applied and bags sealed in one complete operation for cellophane and coated cellophane bags, polyethylene, saran, etc. Machine holds bag for the complete sealing cycle, enabling operator to increase production up to 50 per cent, the maker says. For more information write: Doughboy Industries, Inc., Dept. PE, 215 N. Main St., New Richmond, Wis., or *circle number on card.*

**118—Corrugated Set-Up Machine**

Being offered is a 4-page illustrated folder on its semiautomatic set-up machine for corrugated boxes. Machine sets up and produces up to 900 boxes/hr. To receive this folder write: Gaylord Container Div., Crown Zellerbach Corp., Dept. PE, 111 N. 4th St., St. Louis 2, Mo., or *circle number on card.*

**119—Melt Pots**

A 34-page catalog on its complete line of electric heating units, glue, and wax melting pots is available. Units are manufactured for heating applications in packaging and sealing equipment. For this catalog write: Vulcan Electric Co., Dept. PE, 88 Holton St., Danvers, Mass., or *circle number on card.*

**120—Corrugated Cushioning**

A kit of photographs has been prepared showing typical users of Sus-Rap, a corrugated cushioning material. Some products protected by Sus-Rap are clocks, TV sets, signs, plate glass, etc. For more information write: Vanant Co., Inc., Dept. PE, 5848 N. 96th St., Milwaukee 18, Wis., or *circle number on card.*

**121—Carton Marking**

In a booklet, 24 pages cover the following subjects: How to save on sealing cartons with gummed tape; proper inks to use for all kinds of marking; brush, roller, and spray stenciling; and data on marking packages for export. For more information write: Marsh Stencil Machine Co., Dept. PE, 34 Marsh Bldg., Belleville 34, Ill., or *circle number on card.*

**122—Rotary Piston Filler**

Bulletin 959 provides specifications for a 21-station rotary piston filler. Mechanical drawings are employed to describe this machine which packages viscous or semisolid products at speeds up to 500 containers/min. To receive this bulletin write:

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KEEP YOUR HANDS OFF YOUR CARTONS during forming and closing. Bivans machines cut hand-cartoning costs up to 70%.

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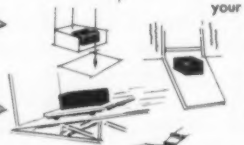

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The Pfaudler Co., Div. of Pfaudler-Permutit, Inc., Dept. PE, 1000 West Ave., Rochester 3, N.Y., or *circle number on card.*

**123—Multiwall Bag Closures**

A brochure has actual bag end samples of Cushion-Stitch closures for multiwall paper bags. The closure is a twisted kraft paper reinforcing cord that lays across the end of the bag—thread is then stitched around the cord and through the bag. For further details write: International Paper Co., Bagpak Div., Dept. PE, 220 E. 42nd St., New York 17, N.Y., or *circle number on card.*

**124—Air Cleaning Machine**

Bulletin No. 141 illustrates and describes four machines—a 2-head unit, an automatic inverted air cleaner, the Rota Cleaner, and the Pneumaclean. For each unit, bottle size limits, operating features, and speeds are given; and floor plans and layout possibilities for the Pneumaclean are illustrated. For a copy of this bulletin write: Pneumatic Scale Corp., Ltd., Dept. PE, 77 Newport Ave., Quincy 71, Mass., or *circle number on card.*

**125—Stretchable Kraft**

A swatch booklet containing samples of Expanda-Kraft, an extensible kraft paper, is available. Offered in three colors, basis weights range from 40 to 100 lb. To receive these samples write: Hollingsworth & Whitney Div., Scott Paper Co., Dept. PE, Chester, Pa., or *circle number on card.*

**126—Design Guide**

A 24-page booklet serves as a design guide for packages made from paper and paperboard sized with Mercize brand sizing. Packages have a high resistance to liquid penetration. Among illustrated suggested uses are serve-in-package cartons and seedling pots for plants. For a copy write: Monsanto Chemical Co., Organic Chemicals Div., Dept. PE, 800 N. Lindbergh Blvd., St. Louis 66, Mo., or *circle number on card.*

**127—Semiautomatic Wrappers**

Two models of semiautomatic wrapping machines are described in a leaflet. General features and specifications for each model are given. For this leaflet write: Elgin Manufacturing Co., Dept. PE, 200 Brook St., Elgin 1, Ill., or *circle number on card.*

**128—Polyethylene Packager**

Offered is a data sheet on a semiautomatic polyethylene packager. It produces a plastic package sealed on


For more information circle No. 289 on Reader Service Card

either three or four sides, in one operation, and is capable of packaging 4,000 pieces/day. For a copy of this data sheet write: Seal-A-Round Corp., Dept. PE, 2024 S. Wabash Ave., Chicago 16, Ill., or *circle number on card.*

**129—Protective Wadding**

A 6-page brochure provides samples and data on four types of "Packit" wadding for surface protection and cushioning of appliances, instruments, furniture, machines, and so on. To receive this brochure write: The Stearns & Foster Co., Dept. PE, Lockland Ave., Cincinnati 15, Ohio or *circle number on card.*

**130—Printing Scale**

Information is available on Printweigh scales which provide printed weight records on forms, tickets, strips, or transmit them electrically for recording on remote adding or other business machines. For more information write: Toledo Scale, Div. of Toledo Scale Corp., Dept PE, Toledo 12, Ohio, or *circle number on card.*

**131—Polyethylenes/Polystyrenes**

A 4-page bulletin, No. C-O-135, describes rigid and expandable polystyrene and conventional, intermediate, and high-density polyethylenes. Descriptions, physical properties, and applications are given. For this bulletin write: Koppers Co., Inc., Plastics Div., Dept. PE, Pittsburgh 19, Pa., or *circle number on card.*

**132—Canning Adhesives**

A leaflet, "Canning Adhesives," describes and lists applications of 25 different types of adhesives, including hot pick-up gums, lap-end label pastes, metal and bottle labeling adhesives, case sealing, and palletizing adhesives. For this leaflet write: Swift & Co., Dept. PE, Adhesive Products Dept., Union Stock Yards, Chicago 9, Ill., or *circle number on card.*

**133—Pressure-Sensitive Tape**

An illustrative folder describes the popular uses of 22 of its pressure-sensitive tapes. To obtain a copy of this folder write: Behr-Manning Co., Dept. PE, Troy, N.Y., or *circle number on card.*

**134—Protective Paper Samples**

A data file contains samples and test data on papers such as laminating and coating papers suitable for release papers or greaseproof barriers. Also included are moisture-resistant papers, flame-resistant papers, Scrimtex, mold-resistant paper, and chemically inert paper for use with metals. For this file write: Mosinee Paper Mills Co., Dept. PE, Mosinee, Wis., or *circle number on card.*

**135—Laminated Paper**

A brochure describes two types of laminated papers—Flex-Fibre and Flex-Lam. Designed to combine sufficient flexibility for the paper to conform to a package, plus extra strength, both papers are reinforced with glass fibers. For a copy of this brochure write: Cromwell Paper Co., Dept. PE, 180 N. Wabash Ave., Chicago 1, Ill., or *circle number on card.*

**136—Shock Recorder**

A brochure provides details on shock-recording instruments and includes descriptions of several types which were designed to fulfill the needs of special, but widespread, shock measurement problems. For this information write: The Impact-O-Graph Corp., Dept. PE, 1900 Euclid Ave., Cleveland 15, Ohio or *circle number on card.*

**137—Vibrating Screening-Feeder**

Available is a catalog section on small-capacity vibrating screening-feeders for simultaneous screening and feeding of bulk materials rang-


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ing in size from 325 mesh to 2 in. Possible applications include dedusting capsules and pills, sizing capsules and pills, or separating nuts and shells, peas, and beans. This catalog section includes descriptions, data, and specifications for five standard sizes. For this information write: Syntron Co., Dept. PE, 269 Lexington Ave., Homer City, Pa., or *circle number on card.*

**138—Wire Coil Holder**

An illustrated 4-page brochure describes a line of coil holders for wire stitching machines which are suitable for flat or round wire. These holders feature automatic braking and sealed bearings. To receive a copy of this brochure write: Acme Steel Co., Dept. PE, 135th St. & Perry Ave., Chicago 27, Ill., or *circle number on card.*

**139—Obliterating Fluid**

A bulletin describes Stencil-Kover—a material developed to cover over or block out old stencil, pencil, or painted markings on cartons, boxes, and crates. This material is nonclogging, quick drying, waterproof, and opaque. Packaged in an aerosol container, it permits quick restenciling and re-use of original containers. For a copy of this bulletin write: Reynolds Ink, Inc., Dept. PE, 4536 Euclid Ave., Cleveland 3, Ohio, or *circle number on card.*

**140—Corrugated Box With Liner**

An illustrated 4-page pamphlet describes a corrugated box which is available with a plastic box liner for packaging liquids, semiliquids, and powders. For this pamphlet write: Stone Container Corp., Dept. PE, 4200 W. 42nd Pl., Chicago 32, Ill. or *circle number on card.*

**141—Plastic Fitment Applicator**

An information sheet reports on the Model SA plastic fitment applicator. This machine can operate independently or with a screw capper. It selects and applies perforated plastic fitments of varied sizes. It also handles the solid type of fitments with side tabs commonly used in drug and pharmaceutical fields. For this information write: Resina Automatic Machinery Co., Inc., Dept. PE, 572 Smith St., Brooklyn 31, N.Y. or *circle number on card.*

**142—Sleeve For Multiwall Bags**

Offered is information on a sleeve, the Crown cuffed tuck-in-sleeve, for multiwall pasted valve bags. The sleeve is turned back at the insert end to provide a double thickness approximately 1½ in. wide. To receive this information write: Crown Zellerbach Corp., Multiwall Bag Div., Dept. PE, 111 N. 4th St., St. Louis 2, Mo., or *circle number on card.*

**143—Skin Packaging**

A brochure provides information on a line of skin packaging machinery. Dimensions and specifications, as well as illustrations, charts, and descriptions, are included. For a copy of this brochure write: Skin-Pak Machinery Co., Inc., Dept. PE, 143 E. Railway Ave., Paterson 3, N.J., or *circle number on card.*

**144—Bag Closing Machines**

Bulletin No. 300 is a 16-page catalog of closing machines for paper and textile bags of all sizes. Data are given on 25 different machine styles and 7 types of sewing heads. For more information write: Union Special Machine Co., Dept. PE, 487 N. Franklin St., Chicago 10, Ill., or *circle number on card.*

**145—Protective Packaging**

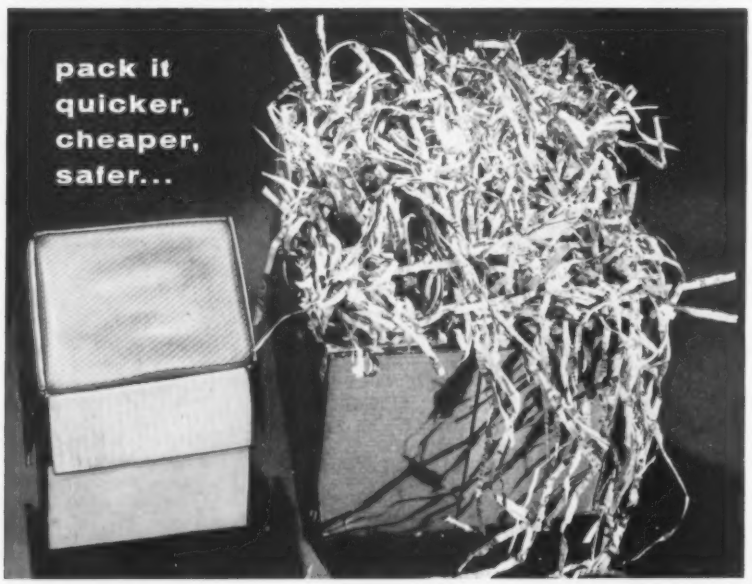
Offered is information on Cipco Foam, an extruded vinyl foam material developed by the Carolina Industrial Plastics Div. of Essex Wire Corp. from Goodrich's Geon vinyl resin. The material is available in profile shapes and colors, and in round continuous lengths in diameters ranging from ⅛ to 1 in. This material is designed for protective packaging. For this information write: The B.F. Goodrich Co., Dept. PE, 188 Derby Pl., Shelton, Conn., or *circle number on card.*

**146—Vibratory Feeders**

A 6-page bulletin, VB-10-1, describes a line of alternating current light- and medium-duty vibratory feeders. Models available are illustrated—from units for light feeding to those for handling up to 10 tons/hr. For this bulletin write: Eriez Manufacturing Co., Dept. PE, 1945 Grove Dr., Erie 6, Pa., or *circle number on card.*

**147—Polyethylene Resin**

Two booklets are available on Alathon polyethylene resin. One deals with extrusion coating and has a chart listing the different types of Alathon, their density, melt index, properties, and uses. It also has a property selector chart which is a graphic generalization of the effect of melt index vis-a-vis density on the processing characteristics of conventional polyethylene. The second booklet notes some 24 polyethylene applications of Alathon. For copies of these booklets write: E.I. du Pont de Nemours & Co. (Inc.), Dept. PE, Room 2507A, Nemours Bldg., Wilmington 98, Del., or *circle number on card.* *(End)*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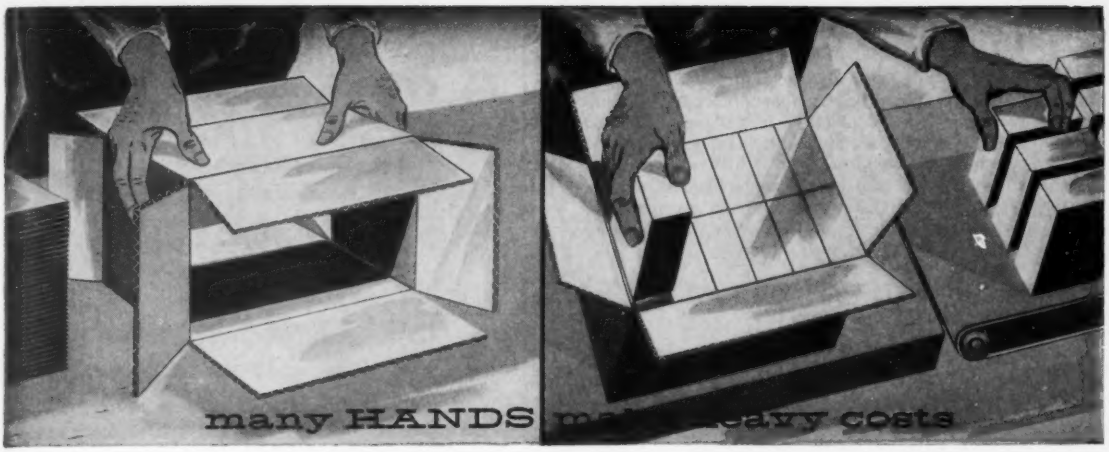


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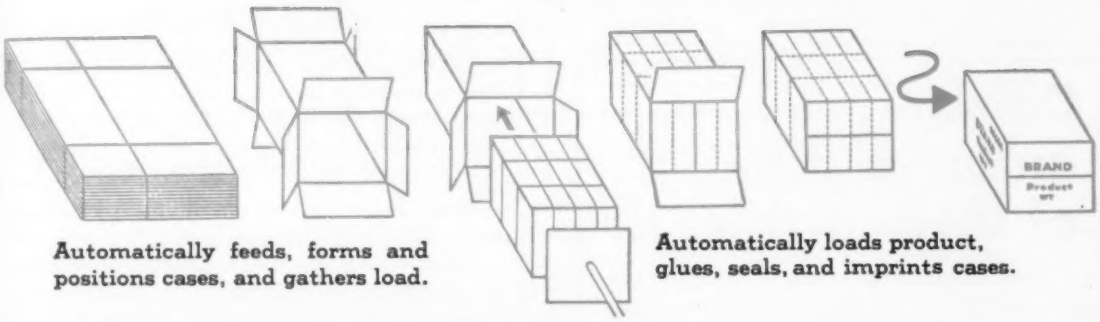


Automatically feeds, forms and positions cases, and gathers load.

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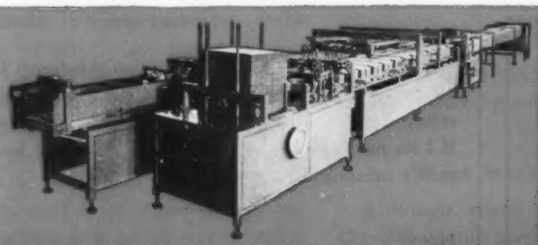

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We recently were appointed American agents for Packaging Abstracts, published by the British research association PATRA—The Printing, Packaging & Allied Trades Research Association. This service gives you in a single, handy periodical (5½x8½ in., averaging 75 pages a month, plus the annual index), brief summaries of packaging articles that have appeared in some 200 packaging magazines plus over 150 magazines devoted to printing and allied subjects, and numerous patents, books, pamphlets, and technical data provided by makers of machinery and materials. An average issue carries about 400 abstracts based on literature received from all parts of the world.

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# American recalls visit to Russian tea plant

***Avco Corporation's Richard E. Stockwell reviews some details of his view of Soviet packaging***

**In contrast to packaging progress elsewhere in Europe, as noted by W. Howard Auerswald and Thomas M. Glynn in this issue, all reports indicate a much slower pace in Russia. Some 18 months ago, one American observer visited a tea plant in Tiflis as part of a four-day sojourn there. We have no information indicating that Russian packaging conditions are any different now than they were then and as he recalls them below. We welcome reports, letters, and photos from readers who have seen packaging behind the Iron Curtain—or elsewhere in the world.**

The Tiflis Tea Plant has been turning out 6 million kilograms (13,200,000 lb.) of tea annually, and I was told its 1960 production would run to 6.5 million kilograms. This plant has 320 workers plus an administrative staff. Also there are 8 operating engineers and 12 assistants. It works two 8-hr. shifts each working day plus a 6-hr. working day on holidays.

After arriving in carload lots (warehouse space permits keeping 20 or more carloads) the tea moves through inspection, blending, and mixing and from there travels on an endless belt to an upper story where it goes into hoppers.

Workers thus dump it out of the foil-lined wood boxes in which it arrives from West Georgia where it is raised and dried. They spread it out on large metal-topped tables and sort out sticks and other obvious foreign matter by hand. The tea also goes through a mechanical arrangement by which metal objects are pulled out with an electro-magnet. From here it feeds down through tubes into automatic packaging machines on the floor below.

After packaging, it goes into the basement for counting and packing into boxes. The automatic packaging machines each have four different hoppers and presumably a different blend goes into each hopper.

### Plant Mechanized

Although plant executives say the 600 people used for packaging in 1941 have been reduced to 35 for the present mechanized operation, we question this figure. We counted an average of 5 people per machine plus some who did not seem assigned to any machine. There were 13 machines thus involving at least 80 people.

These automatic packaging ma-


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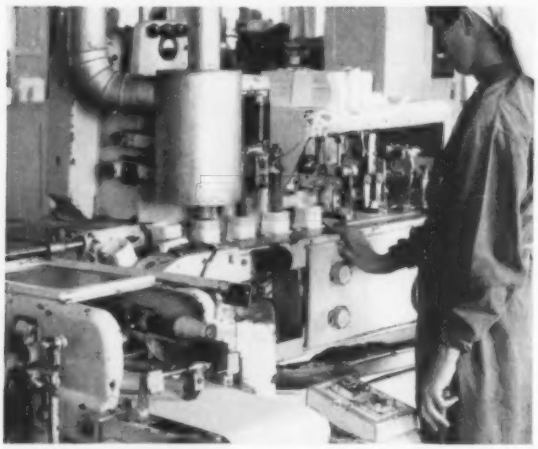
**PROUD MACHINE CREW** displays banner indicating its rating as best packers of previous month. Machine is one of 13 used in plant.

**TEA FEEDS** down from floor above with different pipes for each blend. Paper feeds automatically from roll stock to form packages.



**PREFORMED PACKAGES** receive measured amount of tea (about 50 gm.). Then machine folds top shut. Each machine has five-member crew.

**COMPLETED PACKAGES** go down chute at left, then to storehouse. Plant ships only as ordered. Dry climate simplifies storage.

chines were designed in Russia and built in East Germany. They carried the trade name "Nagema." While the plant imports some spare parts, it has its own machine shop and does its own repairing of packaging machinery. The director said there are ten other plants of this type in Russia and that two are mechanized like the Tiflis plant.

### What Workers Earn

Some 90 per cent of the workers are on a piece-work basis, and their average income is 650-700 rubles per month. Those on piece work are paid on the basis of a progressive system and get the basic salary for 100 per cent "of the plan." For 120 per cent "of plan," they get twice as much. The best workers earn from 1000-1200 rubles monthly, and the poorest get from 500-550 rubles per month.

During the 60 to 90 minutes we were in the plant, there were no breakdowns of machinery and there were no changeovers. In spite of the different tea brands supposed to be in machine hoppers, the lack of stopping to change brands would suggest the Russians all get the same kind of tea.

Automatic packaging machines represent "the heaviest part" of an investment of 5 million rubles. This, added to the original 1941 investment of 7 million rubles, makes an interest-free (the money came from the state) investment of 12 million rubles, according to the director.

He said the plant held second place in the food industry in the USSR in terms of socialist competition. He said the plant had been measured on the basis of 16 items of achievement, including product quality, increasing productivity, labor, and provisions for increased salaries. He hopes to increase production and reduce the total number of people employed within the next year.

Richard E. Stockwell
Electronic and Ordnance Division
Avco Corporation
Cincinnati

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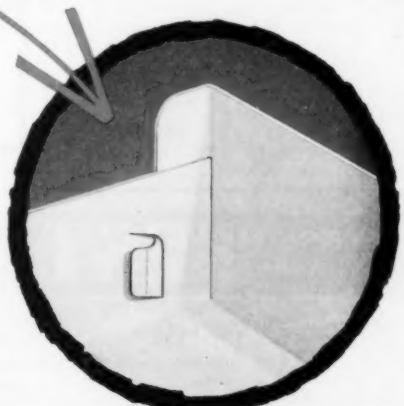

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## What we think

# *Groups should get together, hold annual packaging week*

Why don't the associations and societies serving the packaging field get together in the same city for one big "packaging week" each year? If they haven't done this because nobody urged them, they should try it on their own. If they ever considered it and decided against it, they should take another look at it.

### Four points support a single one-week meeting

In a nutshell, the reasons for an annual packaging week line up something like this:

1. More and more packaging people complain of their companies making it harder and harder for key individuals to spend the time and money involved in going to a multiplicity of meetings around the country.

2. Having the major meetings in one city during one week would mean sparing the key people for just one trip and those few days.

3. Careful planning would minimize conflicts of meetings—thus anticipating and avoiding the difficulty of trying to attend concurrent meetings.

4. Rubbing elbows with more people at the same time by having more talent in town the same week would mean upgraded programs, livelier discussions, and a richer sharing of experiences.

We are glad to see the Packaging Institute and the Society of Packaging and Handling Engineers getting better acquainted with each other. We know them both and can assure each group it has lots in common with the other.

If these two groups would hold their major annual meetings in the same city during the same week, both would benefit. The cross-fertilizing of thinking would outweigh the drawbacks of meetings missed because of schedule conflicts.

Similarly, other organizations with committtees concerned with packaging should let these groups meet during packaging week. American Society for Testing Materials Committees D-10 on shipping containers and F-2 on flexible barriers should hold their major sessions during this one week.

Further, we do not think the American Management Association has to hold its National Packaging Conference concurrently with its National Packaging Exposition. We note that while some 32,000 people attended AMA's big show in Chicago in April, only 750 registered for the packaging conference there.

In this connection, we are impressed by the top-drawer talent on AMA's packaging planning council as well as the aggregation of ability AMA always lines up as conference speakers. Why ask these people to compete with a big packaging show?

If any one characteristic marks the technical and operational packaging field today it is a growing sense of professionalism. We see the Packaging Institute making strides in its efforts to go professional. The Society of Packaging and Handling Engineers is showing new vitality of spirit and action both locally and nationally.

If the groups serving packaging are to reach new heights of service to their members, they must strike out for higher standards and strive to help their members grow and develop professionally. Getting all these packaging professionals together during an annual packaging week would help these efforts.

### We need a packaging week steering committee

The difficulty lies in just how to start. Who makes the first move? How do we get a coordinating group representing the packaging associations?

Before we suggest anything as far reaching as a federation of packaging associations, let's first have a steering committee for an annual packaging week. To help start it we volunteer to be the neutral ground. We invite the ranking elective and administrative officers of the leading associations to join us for lunch to explore all this.

Meanwhile anyone else with some thoughts on an annual packaging week may write us at 185 North Wabash Avenue, Chicago 1, Illinois, or call us at FInancial 6-1440. An annual packaging week is a matter of *when* rather than *if*, and the sooner we get it the better.

Bruce Hoffman

**Editor**

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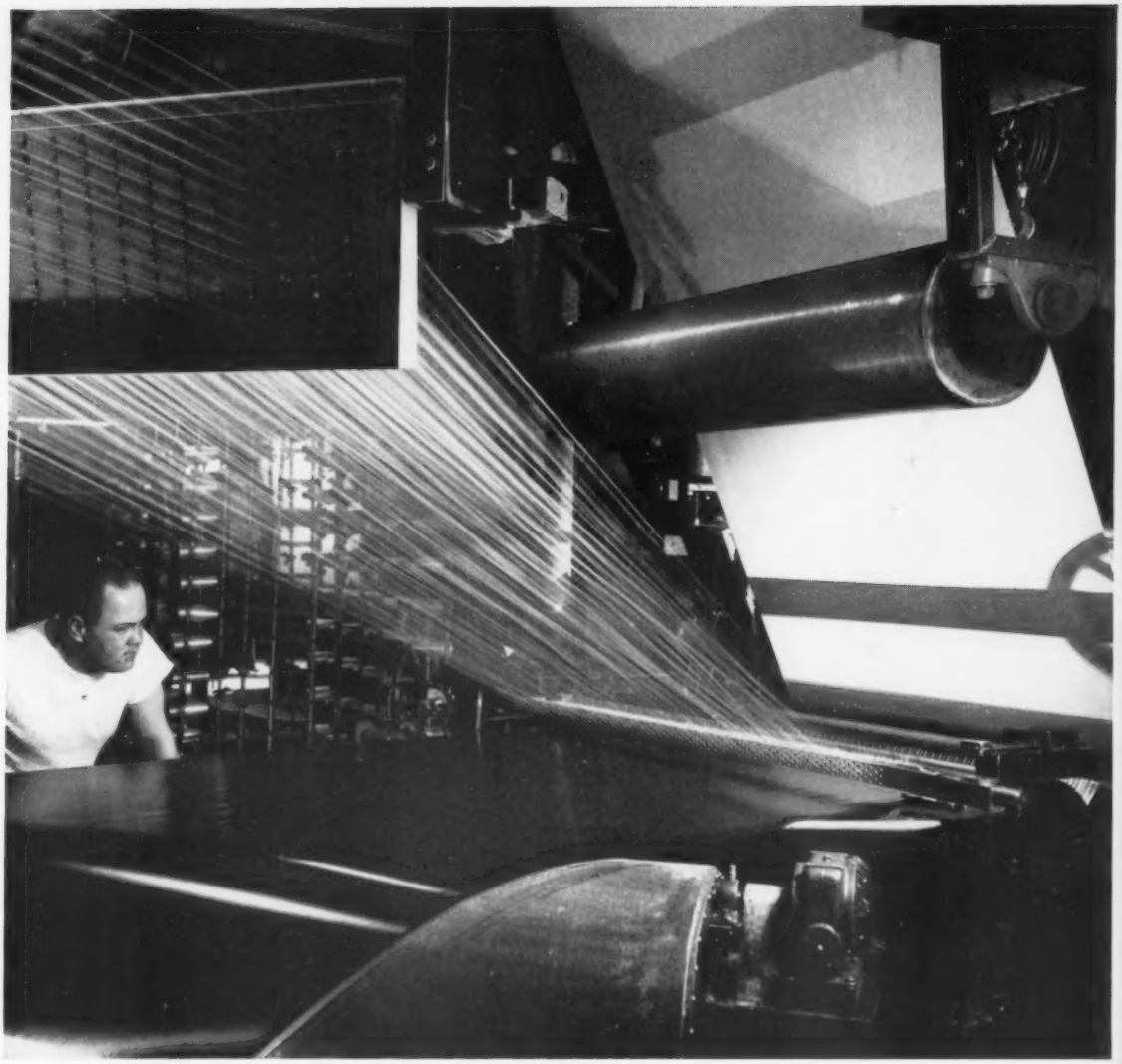

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